

# SHARP SERVICE MANUAL

No. 00ZUX470DESME

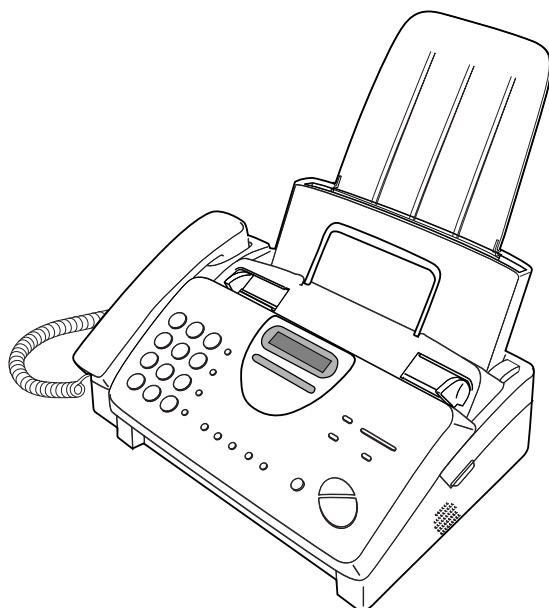


Illustration: UX-470

## FACSIMILE

## UX-470 FO-880 MODEL NX-670

This service manual UX-470DE/FO-880DE/NX-670DE is to appear only on the place where it is changed from UX-310DE/FO-730DE/NX-530DE, and refer to a service manual UX-310DE/FO-730DE/NX-530DE(00ZUX310DESME) except for it.

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- [1] Refer to the service manual of UX-310DE.
  - [2] Refer to the service manual of UX-310DE.
- PARTS GUIDE

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

**SHARP CORPORATION**

This document has been published to be used for after sales service only.  
The contents are subject to change without notice.

#### CAUTION FOR BATTERY REPLACEMENT

- (Danish)                      ADVARSEL !  
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.  
Udskiftning må kun ske med batteri af samme fabrikat og type.  
Levér det brugte batteri tilbage til leverandoren.
- (English)                      Caution !  
Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type  
recommended by the equipment manufacturer.  
Discard used batteries according to manufacturer's  
instructions.
- (Finnish)                      VAROITUS  
Paristo voi räjähtää, jos se on virheellisesti asennettu.  
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan  
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden  
mukaisesti.
- (French)                      ATTENTION  
Il y a danger d'explosion s' il y a remplacement incorrect  
de la batterie. Remplacer uniquement avec une batterie du  
même type ou d'un type recommandé par le constructeur.  
Mettre au rebut les batteries usagées conformément aux  
instructions du fabricant.
- (Swedish)                      VARNING  
Explosionsfare vid felaktigt batteribyte.  
Använd samma batterityp eller en ekvivalent  
typ som rekommenderas av apparattillverkaren.  
Kassera använt batteri enligt fabrikantens  
instruktion.
- (German)                      Achtung  
Explosionsgefahr bei Verwendung inkorrektter Batterien.  
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder  
vom Hersteller empfohlene Batterien verwendet werden.  
Entsorgung der gebrauchten Batterien nur nach den vom  
Hersteller angegebenen Anweisungen.

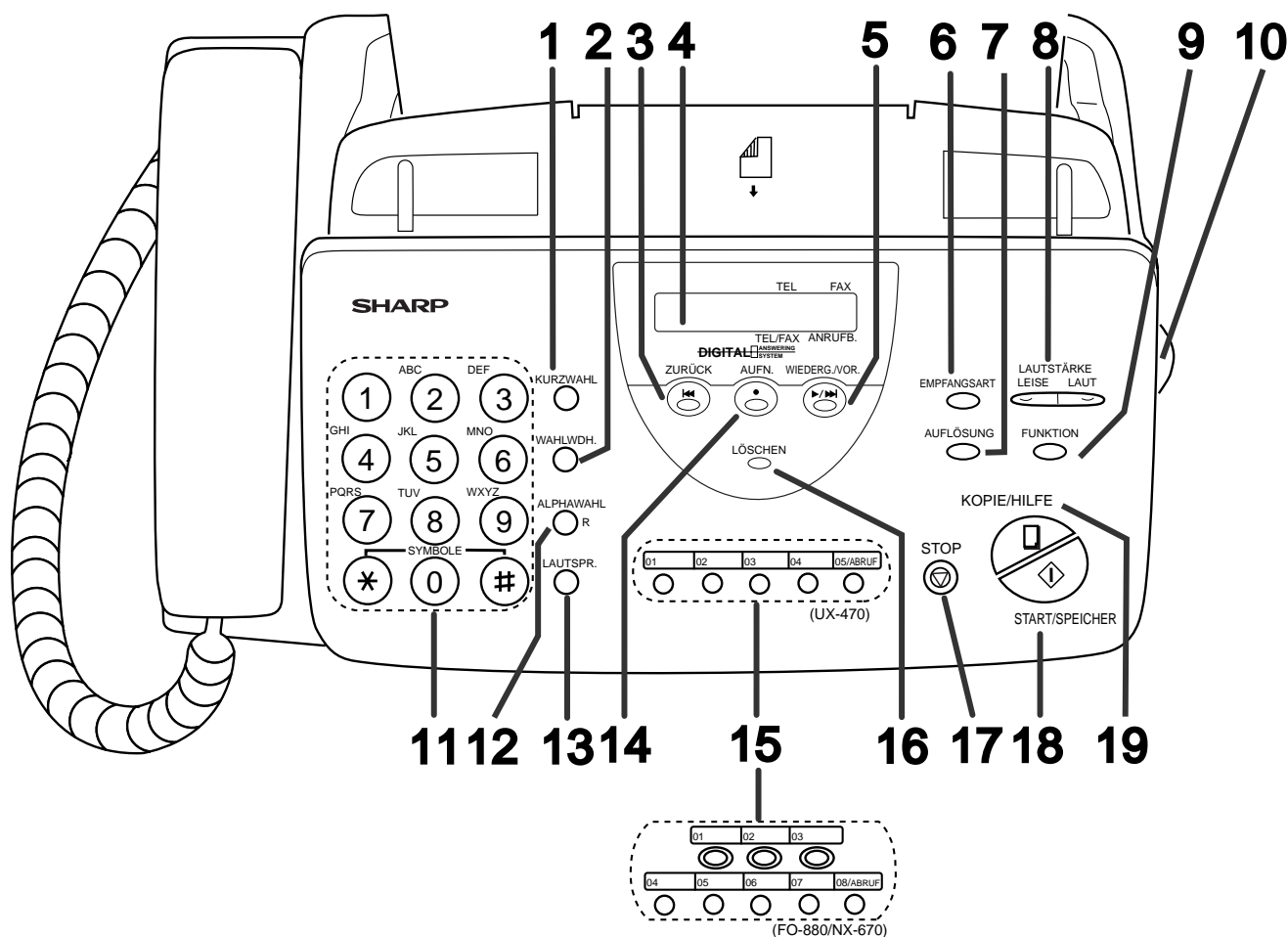
# CHAPTER 1. GENERAL DESCRIPTION

## [1] Specifications

<b>Automatic dialing: (UX-470)</b>	Rapid Key Dialing: 5 numbers Speed Dialing: 40 numbers	<b>Effective scanning width:</b>	210 mm max.
<b>Automatic dialing: (FO-880/NX-670)</b>	Rapid Key Dialing: 8 numbers Speed Dialing: 80 numbers	<b>Contrast control:</b>	Automatic/Dark selectable
<b>Imaging film:</b>	<b>Initial starter roll</b> (included with fax machine): 10 m roll (approx. 30 A4 pages) <b>Replacement roll:</b> <b>UX-3CR</b> 30 m roll (two rolls in package, one roll yields approx. 95 A4 pages)	<b>Copy function:</b>	Standard
<b>Memory size* :</b>	512 KB (approx. 30 average pages with no voice messages recorded, or 24 minutes of voice messages (including OGMs) with no documents in memory)	<b>Telephone function:</b>	Standard (cannot be used for incoming/outgoing if power fails)
<b>Automatic document feeder:</b>	10 sheets max.	<b>Power requirements:</b>	220-230 V AC, 50 Hz
<b>Modem speed:</b>	9600 bps with automatic fallback to 7200, 4800, or 2400 bps	<b>Operating temperature:</b>	5 to 35°C
<b>Transmission time* :</b>	Approx. 15 seconds(Sharp special mode)	<b>Humidity:</b>	Maximum: 85 %
<b>Display:</b>	16-digit LCD display	<b>Power consumption:</b>	Stand-by: 3.0 W Maximum: 115 W
<b>Reception modes:</b>	FAX, TEL, TEL/FAX, A.M.	<b>Dimensions:</b>	Width: 343 mm Depth: 313 mm Height: 312 mm
<b>Resolution:</b>	Horizontal: 8 dots/mm Vertical: Standard: 3.85 lines/mm Fine/Halftone: 7.7 lines/mm Super fine: 15.4 lines/mm	<b>Weight:</b>	Approx. 3.4 kg
<b>Recording system:</b>	Thermal transfer recording	* Based on ITU-T (CCITT) Test Chart #1 at standard resolution in Sharp special mode, excluding time for protocol signals (i.e., ITU-T phase C time only).	
<b>Halftone (grayscale):</b>	32 levels		
<b>Applicable telephone line:</b>	Public switched telephone network / PBX	<b>Note:</b> The facsimile machine is Year 2000 compliant.	
<b>Compatibility:</b>	ITU-T (CCITT) G3 mode		
<b>Configuration:</b>	Half-duplex, desktop transceiver		
<b>Compression scheme:</b>	MH, MR, Sharp		
<b>Scanning method:</b>	Sheet-feeder CIS (Contact Image Sensor)		
<b>Effective recording width:</b>	208 mm max.		
<b>Input document size:</b>	Automatic feeding: Width — 148 to 210 mm Length — 140 to 297 mm Manual feeding: Width — 148 to 210 mm Length — 140 to 600 mm		

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specifications figures indicated are nominal values of production units. There may be some deviation from these values in individual units.

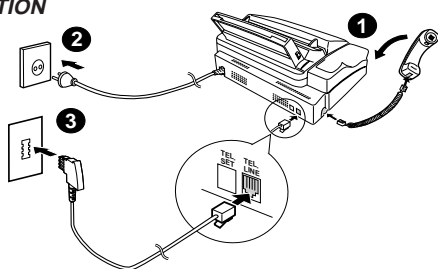
## [2] Operation panel



- 1. KURZAHL (SPEED DIAL key)**  
Press this key to dial a 2-digit Speed Dial number.
- 2. WAHLWDH. (REDIAL key)**  
Press this key to automatically redial the last number dialed.
- 3. ZURÜCK (REPEAT key)**  
Press this key to repeat playback of a message.
- 4. LCD-Anzeige (Display)**  
This displays messages and prompts during operation and programming.
- 5. WIEDERG./VOR. (PLAY/SKIP key)**  
Press this key to play recorded messages. During playback, press it to skip forward to the next message.
- 6. EMPFANGSART (RECEPTION MODE key)**  
Press this key to select the reception mode. An arrow in the display will point to the currently selected reception mode.
- 7. AUFLÖSUNG (RESOLUTION key)**  
Press this key to adjust the resolution and contrast before sending or copying a document.
- 8. LAUTSTÄRKE (VOLUME keys)**  
Press these keys to adjust the volume of the speaker when the **SPEAKER** key has been pressed, or the volume of the ringer at all other times.
- 9. FUNKTION (FUNCTION key)**  
Press this key to select various special function.
- 10. BEDIENFELD ENTRIEGELN (Panel release)**  
Grasp this finger hold and pull toward you to open the operation panel.
- 11. Zifferntasten (Number keys)**  
Use these keys to dial numbers, and enter numbers and letters during number/name storing procedures.
- 12. ALPHAWAL/R (SEARCH/R key)**  
Press this key to search for an automatic dialing number, or, if you are on a P.B.X. extension, press this key to transfer or put the other party on hold.
- 13. Lautspr. (SPEAKER key)**  
Press this key to hear the line and fax tones through the speaker before sending a document, or dialing a voice number.  
Note: **This is not a speakerphone.** You must pick up the handset to talk with the other party.
- 14. AUFN. (REC/MEMO key)**  
Press this key to record a phone conversation or a message.
- 15. Zielwahltasten (Rapid Dial keys)**  
Press one of these keys to dial a fax or voice number automatically. (Note that you must attach the Rapid Key labels.)
- 16. LÖSCHEN (DELETE key)**  
Press this key to erase recorded message.
- 17. STOP (STOP key)**  
Press this key to cancel operations before they are completed.
- 18. START/SPEICHER (START/MEMORY key)**  
Press this key to send or receive a document, or to scan a document into memory before sending it.
- 19. KOPIE/HILFE (COPY/HELP key)**  
When a document is in the feeder, press this key to make a copy. At any other time, press this key to print out the Help List, a quick reference guide to the operation of your fax.

## [5] Quick reference guide

### INSTALLATION



1. Connect the handset as shown.
2. Plug the power cord into a earthed, 220 - 230 V outlet.
3. Plug one end of the telephone line into the **TEL. LINE** socket on the rear of the fax, and the other end into your telephone wall socket.

### RECORDING AN OUTGOING MESSAGE

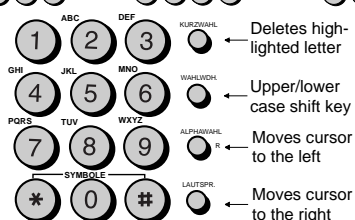
1. Press: **FUNKTION** **0** **#**  
Display shows: **OGM RECORDING**
2. Press: **START/SPEICHER**
3. Press **1** (GENERAL) to record an outgoing message for the answering machine. Press **2** (TRANSFER) to record an outgoing message for the Transfer function.
4. Pick up the handset and speak into it to record your message.
5. When finished, press the **STOP** key or replace the handset.
6. Press: **STOP** **STOP**

### ENTERING YOUR NAME AND NUMBER

**Note:** Imaging film and paper must be loaded to perform the following operation.

1. Press: **FUNKTION** **3** **#** **#**  
Display shows: **OWN NUMBER SET**
2. Press: **START/SPEICHER**
3. Enter your fax number (max. of 20 digits) by pressing the number keys.  
♦ If you make a mistake, press the **SEARCH/R** key to move the cursor back to the mistake, then enter the correct number or letter.
4. Press: **START/SPEICHER**
5. Enter your name by pressing the appropriate number keys as shown below.  
♦ To enter two letters in succession that require the same key, press the **SPEAKER** key after entering the first letter.

A = (2) (2)	J = (5) (5)	S = (7) (7) (7) (7) (7)
B = (2) (2) (2)	K = (5) (5) (5)	T = (8) (8)
C = (2) (2) (2) (2)	L = (5) (5) (5) (5)	U = (8) (8) (8)
D = (3) (3)	M = (6) (6)	V = (8) (8) (8) (8)
E = (3) (3) (3)	N = (6) (6) (6)	W = (9) (9)
F = (3) (3) (3) (3)	O = (6) (6) (6) (6)	X = (9) (9) (9)
G = (4) (4)	P = (7) (7)	Y = (9) (9) (9) (9)
H = (4) (4) (4)	Q = (7) (7) (7)	Z = (9) (9) (9) (9) (9)
I = (4) (4) (4) (4)	R = (7) (7) (7) (7)	SPACE = (1) (1)



Press either key one or more times to select and enter a symbol.

6. When finished, press: **START/SPEICHER** **STOP**

### SETTING THE DATE AND TIME

**Note:** Imaging film and paper must be loaded to perform the following operation.

- Press: **FUNKTION** **3** **\*** **\*** **\***  
Display shows: **DATE & TIME SET**

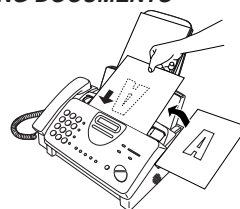
- Press the **START/MEMORY** key: **START/SPEICHER**  
Enter two digits for the Day (01 through 31).  
Enter two digits for the Month (01 through 12).  
Enter four digits for the Year (Ex: 1999).  
Enter two digits for the Hour (01 through 23).  
Enter two digits for the Minute (00 through 59).  
When finished, press: **START/SPEICHER** **STOP**

### STORING AND CLEARING NUMBERS FOR AUTOMATIC DIALING

**Note:** Imaging film and paper must be loaded to perform the following operation.

1. Press: **FUNKTION** **3** **#**  
Display shows: **FAX/TEL # MODE**
2. Press **1** to store a number or **2** to clear a number.
3. Enter a 2-digit Speed Dial number (from 01 to 05 for Rapid Key Dialing, or 06 to 45 for Speed Dialing). (If you are clearing a number, go to Step 7.)
4. Enter the full telephone/fax number.
5. Press: **START/SPEICHER**
6. Enter the name of the location by pressing number keys (max. of 20 characters). (Refer to the letter entry table in ENTERING YOUR NAME AND NUMBER.)
7. Press: **START/SPEICHER** **STOP**

### SENDING DOCUMENTS



Place your document (up to 10 pages) face down in the document feeder.

#### Normal Dialing

1. Lift the handset or press **LAUTSPR.**
2. Dial the fax number.
3. Wait for the reception tone (if a person answers, ask them to press their Start key).
4. Press: **START/SPEICHER**

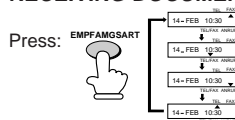
#### Rapid Key Dialing

Press the appropriate Rapid Key. Transmission will begin automatically.

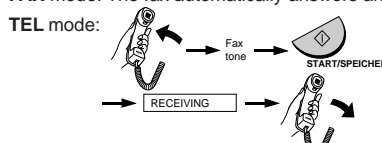
#### Speed Dialing

1. Press: **KURZWAHL**
2. Enter 2-digit Speed Dial number.
3. Press: **START/SPEICHER**

### RECEIVING DOCUMENTS



**FAX mode:** The fax automatically answers and receives the incoming document.



**TEL/FAX mode:** The fax machine automatically answers on 1 or 2 rings and receives faxes. Voice calls (including manually dialed fax transmissions) are signalled by a special ringing sound.

**A.M. mode:** Select this mode when you go out to receive both voice messages and faxes.

UX-470DE  
FO-880DE/NX-670DE

M E M O

## CHAPTER 2. ADJUSTMENTS

### [1] Adjustments

#### General

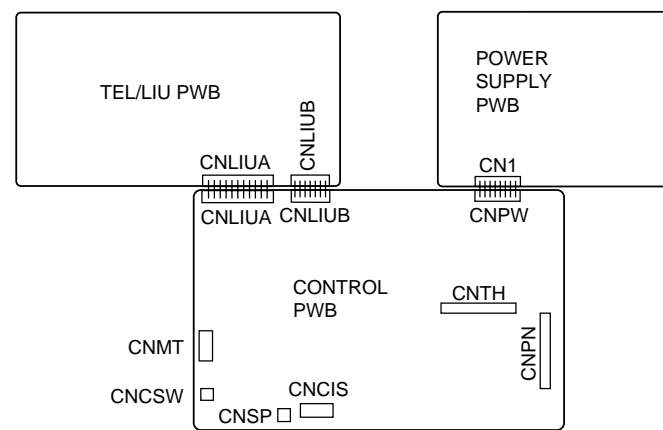
Since the following adjustments and settings are provided for this model, make adjustments and/or setup as necessary.

#### 1. Adjustments

##### Adjustments of output voltage (FACTORY ONLY)

1. Install the power supply unit in the machine.
2. Set the recording paper and document.
3. When the document is loaded, power is supplied to the output lines.  
Confirm that outputs are within the limits below.

##### Output voltage settings



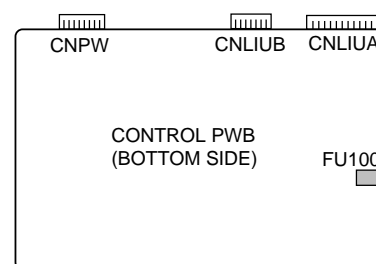
Output	Voltage limits
+5V	4.75V ~ 5.25V
+24V	23.3V ~ 24.7V

Connector No.	CNPW
Pin No.	
1	MG
2	MG
3	+24V
4	+24V
5	+24V
6	DG
7	+5V
8	DG
9	PSAVE

#### 2. IC protectors replacement

ICPs (IC Protectors) are installed to protect the motor driver circuit. ICPs protect various ICs and electronic circuits from an overcurrent condition.

The location of ICPs are shown below:



- (1) FU100 (ICP-S07) is installed in order to protect IC's from an over-current generated in the motor drive circuit. If FU100 is open, replace it with a new one.

#### 3. Settings

##### (1) Dial mode selector

DIAL mode (Soft Switch No. SWB4 DATA No. 3)

(step 1) Select "OPTION SETTING".

KEY : **FUNCTION** ④

DISPLAY: **OPTION SETTING** ⇌ **PRESS × OR #**

(step 2) Select "DIAL MODE".

KEY: Push **#** until "**DIAL MODE**" is indicated because the number of **#**'s changes by the model.

Cursor  
When initially registering, the mode shows 1=TONE. When registering again, the mode which was registered formerly is shown.

DISPLAY: **DIAL MODE** ⇌ **1=TONE, 2=PULSE**

(step 3) Select, using "1" or "2".

KEY: ①

DISPLAY: **TONE SELECTED**

KEY: ②

DISPLAY: **PULSE SELECTED**

(step 4) End, using the "STOP" key.

KEY: **STOP**

[2] Diagnostics and service soft switch

1. Operating procedure

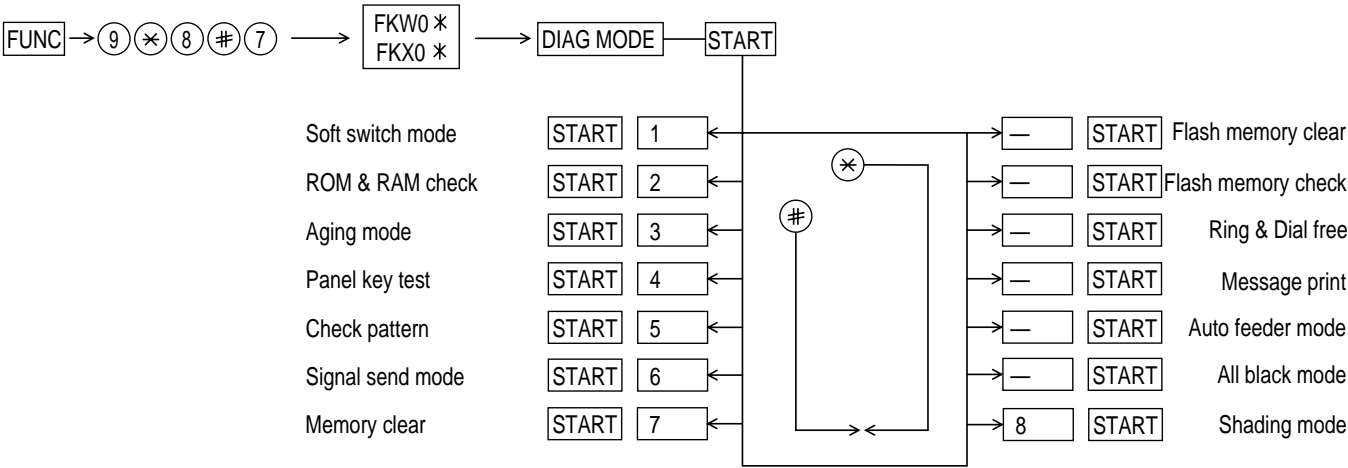
(1) Entering the diagnostic mode

Press **[FUNC]** → **[9]** → **[\*]** → **[8]** → **[#]** → **[7]** , and the following display will appear.

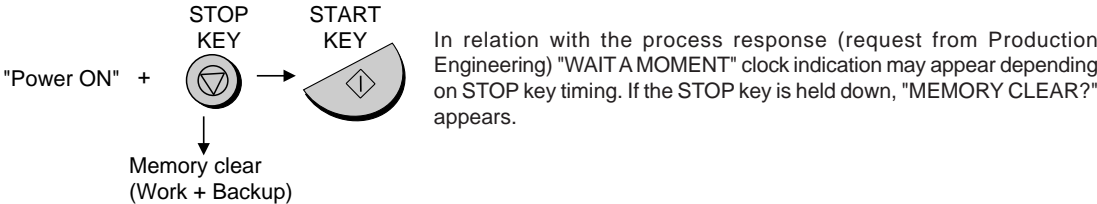
**[ROM Ver. FKW0 X (FKX0 X)]** After 2 sec: **[DIAG MODE]**

FKW0 X (UX-470DE)  
FKX0 X (FO-880DE/NX-670DE)

Then press the **[START]** key. Select the desired item with the **[\*]** key or the **[#]** key or select with the rapid key. Enter the mode with the **START** key.  
(Diag•specifications)



If the diag mode cannot be set, repeat the diag mode operation, performing the following operation.  
After the power is turned on and "WAIT A MOMENT" is indicated, press the **STOP** key.



2. Diagnostic items

ITEM No.	DIRECT key (UX-470)	DIRECT key (FO-880/NX-670)	Contents	Function
1	1	1	SOFT SWITCH MODE	Soft switches are displayed and changed. List can be output.
2	2	2	ROM & RAM CHECK	ROM is sum-checked, and RAM is matched. Result list is output.
3	3	3	AGING MODE	10 sheets of check patterns are output every 5 minutes per sheet.
4	4	4	PANEL KEY TEST	Panel keys are tested. Result list is output.
5	5	5	CHECK PATTERN	Check pattern is output.
6	—	6	SIGNAL SEND MODE	Various signals of FAX communication are output.
7	—	7	MEMORY CLEAR	Back-up memory is cleared, and is set at delivery.
8	—	8	SHADING MODE	Shading compensation is performed in this mode.
9	—	—	ALL BLACK PRINT	To check the print head, whole dots are printed over the interval of 2 m.
10	—	—	AUTO FEEDER MODE	Insertion and discharge of document are tested.
11	—	—	MESSAGE PRINT	The display message of each language is printed out together with the English equivalent.
12	—	—	RING & DIAL FREE	Allows CI detection of 13Hz or more. Eliminates dial tone detection in auto dial.
13	—	—	FLASH MEMORY CHECK	Checks flash memory write/read.
14	—	—	FLASH MEMORY CLEAR	Checks flash memory clearing.



### 3. Diagnostic items description

#### 3. 1. Soft switch mode

Used to change the soft switch settings.

The soft switch which is stored internally is set by using the keys.

The available soft switches are SW-A1 to SW-M2.

The content of soft switches is shown in page 2-5 to 2-16.

The contents are set to factory default settings.

#### 3. 2. ROM & RAM check

ROM executes the sum check, and RAM executes the matching test. The result will be notified with the number of short sounds of the buzzer as well as by printing the ROM & RAM check list.

Number of short sounds of buzzer   0 → No error  
  1 → ROM error  
  2 → RAM error (32Kbyte)

#### 3. 3. Aging mode

If any document is first present, copying will be executed sheet by sheet. If no document is present, the check pattern will be printed sheet by sheet. This operation will be executed at a rate of one sheet per 5 minutes, and will be ended at a total of 10 sheets.

#### 3. 4. Panel key test

This mode is used to check whether each key operates properly or not. Press the key on the operation panel, and the key will be displayed on the display. Therefore, press all keys. At this time, finally press the STOP key.

When the STOP key is pressed, the keys which are not judged as "pressed" will be printed on the result list.

- LED port of the contact image sensor (CIS) is kept on during the term from when start of the panel test mode to end with the STOP key.

#### 3. 5. Check pattern

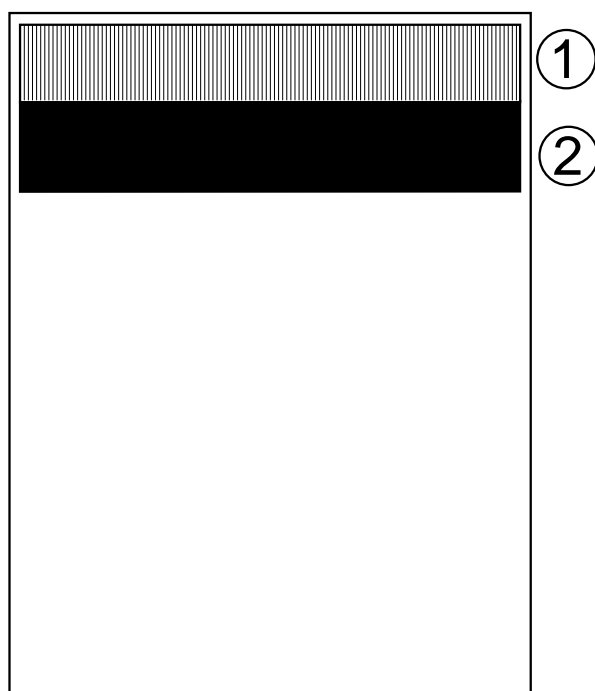
This mode is used to check the state of the printing head. It is ended with the following pattern printed on one printing sheet.

- ① Longitudinal stripe 2 Approx. 30 mm

2 black dots and 2 white dots are repeatedly progressed on one line.

- ② Full black

Approx. 30 mm



#### 3. 6. Signal send mode

This mode is used to send various signals to the circuit during FAX communication. Every push of START key sends a signal in the following sequence. Moreover, the signal sound is also output to the speaker when the line monitor of the soft switch is on.

- [1] No signal (CML signal turned on)
- [2] 9600bps
- [3] 7200bps
- [4] 4800bps
- [5] 2400bps
- [6] 300bps (FLAG)
- [7] 2100Hz (CED)
- [8] 1100Hz (CNG)
- [9] END

#### 3. 7. Memory clear

This mode is used to clear the backup memory and reset to the default settings.

#### 3. 8. Shading mode

The mode is used for the shooting compensation. For reading, set up the special original paper.

The shooting compensation memorizes the reference data of white and black for reading.

Moreover, the memorized data is not erased even if memory clear mode is executed.

#### 3. 9. All black print

This mode is used to check the state of the printing head and intentionally overheat it. Whole dots are printed over the interval of 2 m. If it is overheated or the printing sheet is jammed, press STOP key for the end.

#### 3. 10. Auto feeder mode

In this mode, a document is inserted and discharged to check the auto feed function.

After this mode is started, set a document, and the document feed will be automatically tested.

#### 3. 11. Message print

Used to print the displayed message of communication for translate each language.

#### 3. 12. Ring & Dial free

Used to reject dial tone check while autodialing is carried out. And used to change the bottom Ring frequency of auto-receiving to 13Hz.

#### 3. 13. Flash memory check

Data is written into and read from the flash memory to check the data conformity. When the unit enters this mode, the check is started.

#### 3. 14. Flash memory clear

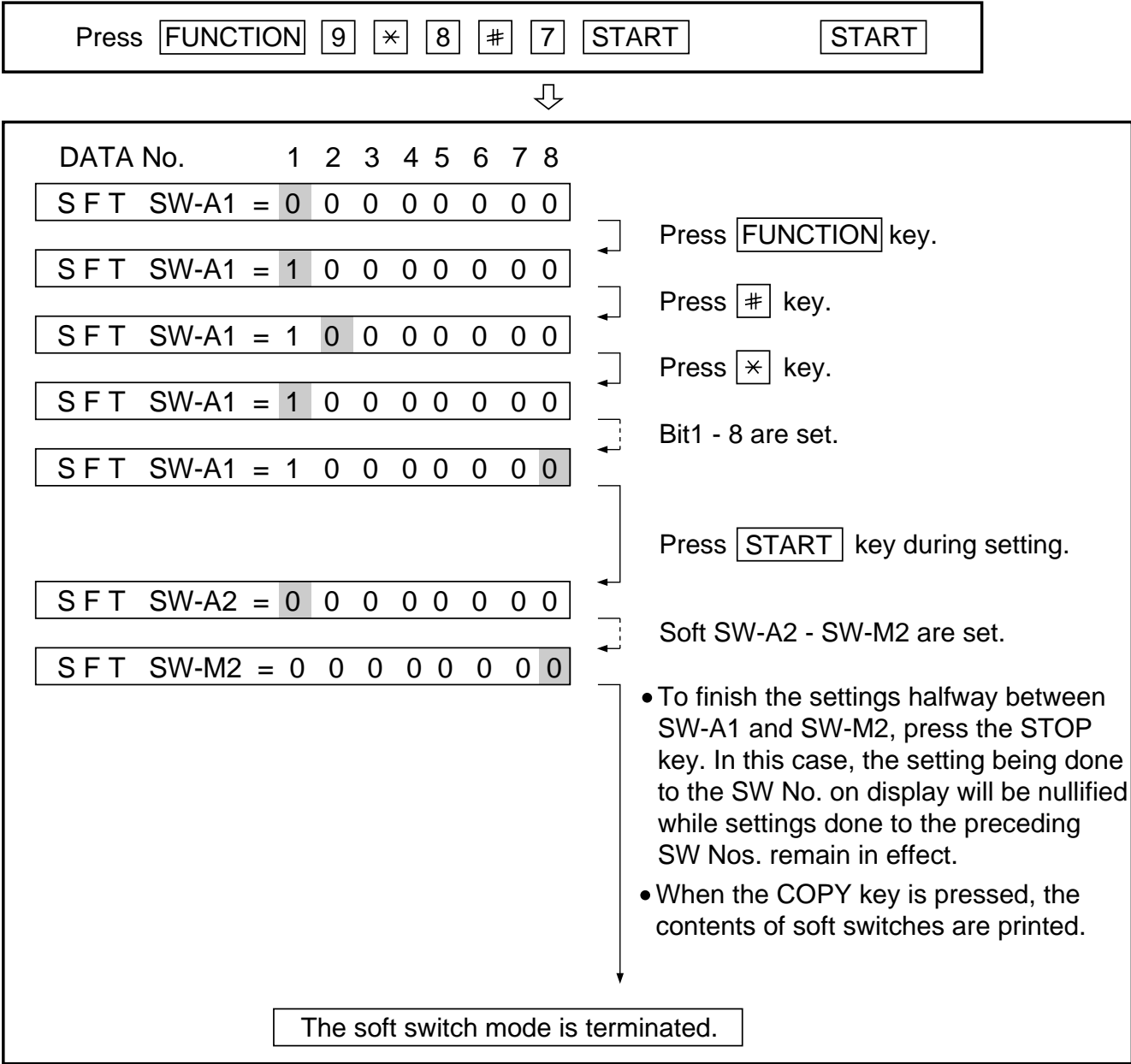
Data in the flash memory is cleared (memory clear). When the unit enters this mode, the check is started.

The result is announced by the buzzer beeps. The result of check is printed.

Beeps  
0 → No error  
1 → Memory error

4. How to make soft switch setting

To enter the soft switch mode, make the following key entries in sequence.



## 5. Soft switch description

### • Soft switch

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting								Remarks		
			1	0	DE										
SW I A1	1	Protect from echo	No	Yes	0										
	2	Forced 4800 BPS reception	Yes	No	0										
	3	Footer print	Yes	No	0										
	4	Length limitation of copy/send/receive	No limit	Copy/send: 60cm Receive: 1.5m	0										
	5	CSI transmission	No transmitted	Transmitted	0										
	6	DIS receive acknowledgement during G3 transmission	Twice	NSF: Once DIS: Twice	0										
	7	Non-modulated carrier for V29 transmission modem	Yes	No	0										
	8	EOL detect timer	25 s	13 s	0										
SW I A2	1 2 3 4	Modem speed		V.29		V.27 ter		0 0 0 1							
				9600	7200	4800	2400								
			No. 1	0	0	0	0								
			No. 2	0	0	0	0								
			No. 3	0	1	1	0								
		No. 4	1	1	0	0									
	5	Sender's information transmit	No	Yes	0										
	6	H2 mode	No	Yes	0										
7	Communication error treatment in RTN sending mode (reception)	No communication error	Communication error	0											
8	CNG transmission	No	Yes	0											
SW I A3	1 2	CED tone signal interval		1000ms	750ms	500ms	75ms	0 0 0							
			No. 1	1	1	0	0								
			No. 2	1	0	1	0								
	3	MR coding	No	Yes	0										
	4	Reserved			0										
	5	Reserved			0										
	6	Reserved			0										
	7	Reserved			0										
8	Reserved			0											
SW I A4	1	Signal transmission level	Binary input				0								
	2		No. =	16	8	4	2							1	1
	3			1	2	3	4							5	0
	4			0	1	0	1							1	1
5															1
6	Protocol monitor (error print)	Printed at com. error	Not printed	0											
7	Protocol monitor	Yes	No	0											
8	Line monitor	Yes	No	0											
SW I A5	1 2	Digital line equalization setting (Reception)		7.2km		0km		1 1							
			No. 1	1		0									
			No. 2	1		0									
	3	Reserved					0								
	4	Reserved					0								
	5 6	Digital cable equalizer setting (Reception for Caller ID)		7.2km		0km		0 0							
			No. 5	1		0									
			No. 6	1		0									
7	Error criterion	10 ~ 20 %		5 ~ 10 %		0									
8	Anti junk fax check	Yes		No		0							OPTION		

SW NO.	DATA NO.	ITEM	Switch setting and function				Initial setting								Remarks
			1		0		DE								
SW I A6	1	Auto gain control (MODEM)	Enable		Disable		1								
	2	End Buzzer	Yes		No		1								
	3	Disconnect the line when DIS is received in RX mode	No		Yes		1								
	4	Equalizer freeze control (MODEM)	On		Off		0								
	5	Equalizer freeze control 7200 BPS only	No		Yes		0								
	6	CNG transmission in manual TX mode	Yes		No		1								
	7	Initial compression scheme for sharp fax in TX mode	MR mode		H2 mode		0								
	8	Reserved					0								
SW I B1	1	Reserved					0								
	2	Reserved					0								
	3	Reserved					0								
	4	Reserved					0								
	5	Recall times	Binary input				0								
	6		No. =	8	4	2	1	0							
	7			5	6	7	8	1							
	8			0	0	1	0	0							
SW I B2	1	Dial pausing (sec/pause)	4 sec		2 sec		1								
	2	Dial tone detection (before auto dial)	No		Yes		0								
	3	Reserved					0								
	4	Busy tone detection (after auto dial)	No		Yes		0								
	5	Reserved					0								
	6	Reserved					0								
	7	Reserved					0								
	8	PBX connection	Yes		No		0								OPTION
SW I B3	1	PBX recall function (R key select)		No.	Earth	Flash									OPTION
			No. 1	0	1	1	1								
			No. 2	0	0	1	1								
	3	Reserved					0								
	4	PBX select		ID	Earth	Flash									OPTION
			No. 4	0	1	1	0								
			No. 5	0	0	1	0								
	6	Reserved					0								
	7	Reserved					0								
	8	Reserved					0								
SW I B4	1	Reserved					0								
	2	Reserved					0								
	3	Dial mode	Tone		Pulse		1								OPTION
	4	Pulse → Tone change function by ✕ key	Enable		Disable		1								
	5	Reserved					0								
	6	Reserved					0								
	7	PBX type	ISDN		NORMAL		0								OPTION
	8	Reserved					0								

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting								Remarks	
			1		0			DE									
SW I B5	1	DTMF signal transmission level (Low)	Binary input					1									
	2		No. = 16 8 4 2 1					1									
	3		1 2 3 4 5					1									
	4		1 1 1 0 0					0									
	5							0									
	6	Reserved						0									
	7	Reserved						0									
	8	Reserved						0									
SW I B6	1	DTMF signal transmission level (High)	Binary input					1									
	2		No. = 16 8 4 2 1					1									
	3		1 2 3 4 5					0									
	4		1 1 0 0 1					0									
	5							1									
	6	Reserved						0									
	7	Reserved						0									
	8	Reserved						0									
SW I C1	1	Reading slice (Binary)		Factory setting	Light	Dark	Darker in dark mode										
			No. 1	0	1	0	1	0									
			No. 2	0	0	1	1	0									
	3	Reading slice (Half tone)		Factory setting	Light	Dark	Darker in dark mode										
			No. 3	0	1	0	1	0									
			No. 4	0	0	1	1	0									
	5	Line density selection	Fine		Standard			0								OPTION	
	6	Halftone gray scale selection	16 level		64 level			0								OPTION	
7	MTF correction in half tone mode	No		Yes			0										
8	Reserved						0										
SW I D1	1	Number of rings for auto receive	Binary input					0									OPTION
	2		No. = 8 4 2 1					0									
	3		1 2 3 4					0									
	4		0 0 0 1					1									
	5	Automatic switching manual to auto receive mode	Reception after 5 rings		No reception			0									
	6	Reserved						0									
	7	CI detection	13 Hz or more		As is PTT			0									
	8	Reserved						0									
SW I D2	1	Reserved						0									
	2	Reserved						0									
	3	Reserved						0									
	4	Reserved						0									
	5	Caller ID function	Yes		No			0									OPTION
	6	Reserved						0									
	7	Reserved						0									
	8	Caller ID detect during CI off	All times		Only first			1									
SW I E1	1	Tel/Fax Automatic switching mode	Tel/Fax auto switch		Switch to Fax			1									
	2	Pseudo ringing time at phone/fax automatic switching mode		15sec	60sec	30sec	120sec										OPTION
			No. 2	0	0	1	1	0									
			No. 3	0	1	0	1	0									
	4	Number of CNG signal detection at the tel/fax automatic switching mode	Twice		Once			1									
	5	Reserved						0									
	6	Reserved						0									
	7	Post answer tone (transmit in Tel/Fax mode)	No		Yes			0									
8	Reserved						0										

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting								Remarks
			1		0			DE								
SW I E2	1	Pseudo ringer sound volume	Binary input					0								
	2		No. = 8 4 2 1					1								
	3		1 2 3 4					0								
	4		0 1 0 1					1								
	5	Reserved						0								
	6	Reserved						0								
	7	Reserved						0								
	8	Reserved						0								
SW I F1	1	DTMF detection time		50ms	80ms	100ms	120ms									
	2		No. 1	0	0	1	1	0								
			No. 2	0	1	0	1	0								
	3	Protection of remote reception (5 XX ) detect	Yes			No		0								OPTION
	4	Remote reception with GE telephone	Compatible			Not compatible		1								
	5	Remote operation code figures by external TEL (0~9)	Binary input					0								OPTION
	6		No. = 8 4 2 1					1								
	7		5 6 7 8					0								
8	0 1 0 1					1										
SW I F2	1	CNG detection in STAND-BY mode	Yes			No		1								OPTION
	2	Number of CNG detect (AM mode)		1pulse	2pulses	3pulses	4pulses									
	3		No. 2	0	0	1	1	0								
			No. 3	0	1	0	1	1								
	4	Number of CNG (STAND-BY mode)		1pulse	2pulses	3pulses	4pulses									
	5		No. 4	0	0	1	1	0								
			No. 5	0	1	0	1	1								
	6	Reserved						0								
7	Reserved						0									
8	Reserved						0									
SW I G1	1	Reserved						0								
	2	Reserved						0								
	3	Reserved						0								
	4	Reserved						0								
	5	Reserved						0								
	6	Reserved						0								
	7	Reserved						0								
	8	Reserved						0								
SW I G2	1	Reserved						0								
	2	Reserved						0								
	3	Reserved						0								
	4	Reserved						0								
	5	Reserved						0								
	6	Reserved						0								
	7	Reserved						0								
	8	Reserved						0								
SW I G3	1	Reserved						0								
	2	Reserved						0								
	3	Reserved						0								
	4	Reserved						0								
	5	Reserved						0								
	6	Reserved						0								
	7	Reserved						0								
	8	Reserved						0								

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting								Remarks	
			1		0			DE									
SW I H1	1	Reserved						0									
	2	Reserved						0									
	3	Reserved						0									
	4	Busy tone continuous sound detect time	5 sec		As is PTT			1									
	5	Busy tone detect continuation sound detect during OGM	No		Yes			1									
	6	Busy tone detect continuation sound detect (during ICM : for internal A.M.)	No		Yes			0									
	7	Busy tone detect intermittent sound during OGM	No		Yes			1									
	8	Busy tone detect intermittent sound detect (during ICM : for internal A.M.)	No		Yes			0									
SW I H2	1	Busy tone detection pulse number		2pulses	4pulses	6pulses	10pulses	1									
	No. 1		0	0	1	1	0										
	No. 2		0	1	0	1	0										
	3	Fax switching when A.M. full	Yes		No			0								OPTION	
	4	Reserved						0									
	5	Reserved						0									
	6	Reserved						0									
	7	AM OGM announce only mode	Yes		No			0									OPTION
8	Reserved						0										
SW I I1	1	ICM recording time		4min	15s	30s	60s	0									OPTION
	No. 1		0	0	1	1	0										
	No. 2		0	1	0	1	0										
	3	A.M. quiet time 1		2s	3s	4s	5s	0									
	No. 3		0	0	1	1	0										
	No. 4		0	1	0	1	0										
	5	A.M. quiet time 2		0s	1s	2s	3s	1									
	No. 5		0	0	1	1	0										
	No. 6		0	1	0	1	0										
	7	Key input buzzer on/off switch (Two way recording mode)	On		Off			0									
	8	Reserved						0									
SW I I2	1	A.M. quiet detect time	Binary input					0									
	No. = 16 8 4 2 1					0											
	1 2 3 4 5					1											
	0 0 1 0 0					0											
						0											
	6	Reserved						0									
	7	Reserved						0									
	8	Alarm during two way alarm	Yes		No			0									
SW I I3	1	Max OGM record time	15s		60s			0									
	2	Reserved						0									
	3	Two way record function	Disable		Enable			0									
	4	Toll saver	Disable		Enable			0									OPTION
	5	FAX reception in case of detecting no sound detect after ICM recording	Yes		No			1									
	6	Reserved						0									
	7	Reserved						0									
	8	Transfer dial recall	No		Yes			0									

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting								Remarks
			1		0			DE								
SW I 14	1	AGC maximum gain (line) (10~25dB)(1dB step)	Binary input					1								
	2		No. =	8	4	2	1	1								
	3			1	2	3	4	0								
	4			1	1	0	0	0								
	5	AGC maximum gain (Mic) (10~25dB)(1dB step)	Binary input					1								
	6		No. =	8	4	2	1	0								
	7			5	6	7	8	1								
	8			1	0	1	0	0								
SW I 15	1	AGC eref access code (line) (-0~-30dB)(2dB step)	Binary input					1								
	2		No. =	8	4	2	1	0								
	3			1	2	3	4	0								
	4			1	0	0	0	0								
	5	AGC eref access code (Mic) (-0~-30dB)(2dB step)	Binary input					1								
	6		No. =	8	4	2	1	0								
	7			5	6	7	8	0								
	8			1	0	0	0	0								
SW I 16	1	AGC gain adaptation threshold (line)	Binary input					1								
	2		No. =	8	4	2	1	1								
	3			1	2	3	4	1								
	4			1	1	1	1	1								
	5	AGC gain adaptation threshold (Mic)	Binary input					1								
	6		No. =	8	4	2	1	1								
	7			5	6	7	8	1								
	8			1	1	1	1	1								
SW I 17	1	AGC slew rate (line)		Slow	Normal	Little fast	Fast	0								
	2		No. 1	0	0	1	1									
			No. 2	0	1	0	1		1							
	3	AGC slew rate (Mic)		Slow	Normal	Little fast	Fast	0								
	4		No. 3	0	0	1	1									
			No. 4	0	1	0	1		1							
	5	Reserved						0								
	6	Reserved						0								
7	Reserved						0									
8	Reserved						0									
SW I J1	1	Activity report print	Automatic printout			No printout when memory full		0								OPTION
	2	Total communication hours and pages print	No			Yes		0								
	3	Sender's phone number setting	Cannot change			Change allowed		0								
	4	Reserved						0								
	5	Reserved						0								
	6	Summer time setting	No			Yes		0								
	7	Ringer volume		Off	Low	Middle	High	1								OPTION
	8		No. 7	0	0	1	1									
SW I J2	1	Reserved						0								
	2	Reserved						0								
	3	Polling key	Yes			No		0								OPTION
	4	Reserved						0								
	5	Reserved						0								
	6	Speaker volume (5 stages)		Very Low	Low	Middle	High	Very High	0							OPTION
	7		No. 6	0	0	0	0	1								
	8		No. 7	0	0	1	1	0		1						



SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting								Remarks
			1			0			DE								
SW I J3	1	Automatic cover sheet	Yes			No			0								OPTION
		Communication results printout (Transaction report)		E/T/M	Send only	Always	No print	Err only									OPTION
	2		No. 2	0	0	0	0	1	1								
	3		No. 3	0	0	1	1	0	0								
	4		No. 4	0	1	0	1	0	0								
	5	Reserved							0								
	6	Reserved							0								
	7	Reserved							0								
8	Reserved							0									
SW I K1	1	Entering DIAG mode by pressing SPEED key	Yes			No			0								
	2	Reserved							0								
	3	OGM/ICM output level	Binary input						0								
	4		No. =	32	16	8	4	2	1	1							
	5			3	4	5	6	7	8	0							
	6			0	1	0	0	0	1	0							
	7									0							
	8									1							
SW I L1	1	Reserved							0								
	2	Reserved							0								
	3	Reserved							0								
	4	Reserved							0								
	5	Cut off mode (COPY mode)	Yes			No			1								OPTION
	6	A4 paper enable	Enable			Disable			1								
	7	LEGAL & LETTER paper enable	Enable			Disable			0								
	8	2 IN 1 mode	Yes			No			0								OPTION
SW I L2	1	Paper set size		LETTER		LEGAL		A4	1								
	No.1		0		0		1										
	No.2		0		1		0										
	3	Automatic reduce of receive	Auto			100 %			1								OPTION
	4	Print contrast	Light			Normal			0								OPTION
	5	Reception reduction ratio in case of memory full	100 %			93 %			0								OPTION
	6	Reserved							0								
	7	Reserved							0								
8	Reserved							0									
SW I M1	1	Reserved							0								
	2	Reserved							0								
	3	Reserved							0								
	4	Reserved							0								
	5	Reserved							0								
	6	Reserved							0								
	7	Reserved							0								
	8	Reserved							0								
SW I M2	1	Reserved							0								
	2	Reserved							0								
	3	Reserved							0								
	4	Reserved							0								
	5	Reserved							0								
	6	Reserved							0								
	7	Reserved							0								
	8	Reserved							0								

## • Soft switch function description

### SW-A1 No. 1 Protect from echo

Used to protect from echo in reception.

### SW-A1 No. 2 Forced 4800BPS reception

When line conditions warrant that receptions take place at 4800 BPS repeatedly.

It may improve the success of receptions by setting at 4800BPS.

This improves the receiving document quality and reduces handshake time due to fallback during training.

### SW-A1 No. 3 Footer print

When set to "1", the date of reception, the sender machine No., and the page No. are automatically recorded at the end of reception.

### SW-A1 No. 4 Length limitation of copy/send/receive

Used to set the maximum page length.

To avoid possible paper jam, the page length is normally limited to 0.6 meter for copy or transmit, and 1.5 meters for receive.

It is possible to set it to "No limit" to transmit a long document, such as a computer print form, etc. (In this case, the receiver must also be set to no limit.)

### SW-A1 No. 5 CSI transmission

(CSI TRANSMISSION) is a switch to set whether the machine sends or does not send the signal (CSI signal) informing its own telephone No. to the remote fax machine when information is received. When "nonsending" is set, the telephone No. is not output on the remote transmitting machine if the remote transmitting machine has the function to display or print the telephone No. of receiving machine, using this CSI signal.

### SW-A1 No. 6 DIS receive acknowledgment during G3 transmission

Used to make a choice of whether reception of DIS (NSF) is acknowledged after receiving two DISs (NSFs) or receiving one DIS (two NSF). It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

### SW-A1 No. 7 Non-modulated carrier for V29 transmission modem

Though transmission of a non-modulated carrier is not required for transmission by the V29 modem according to the CCITT recommendation, it may be permitted to send non-modulated carrier before the image signal to avoid an echo suppression problem. It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

### SW-A1 No. 8 EOL (End Of Line) detect timer

Used to make a choice of whether to use the 25-second or 13-second timer for detection of EOL.

This is effective to override communication failures with some facsimile models that have longer EOL detection.

### SW-A2 No. 1 ~ No. 4 Modem speed

Used to set determine the initial modem speed. The default is 9600BPS. It may be necessary to program it to a slower speed when frequent line fallback is encountered, in order to save the time required for fallback procedure.

### SW-A2 No. 5 Sender's information transmit

(SENDER'S INFORMATION TRANSMISSION) is a switch to set the function to print the content of HEADER PRINT described in the passcode list at the front end of receiver's original when original is sent to the remote machine.

If this switch is set to "NO", the HEADER PRINT is not output at the receiving machine.

### SW-A2 No. 6 H2 mode

Used to determine reception of H2 mode (15 sec transmission mode). When set to OFF, H2 mode reception is inhibited even though the transmitting machine has H2 mode function.

### SW-A2 No. 7 Communication error treatment in RTN sending mode (Reception)

Used to determine communication error treatment when RTN is sent by occurrence of a received image error in G3 reception. When it is set to "1", communication error is judged as no error.

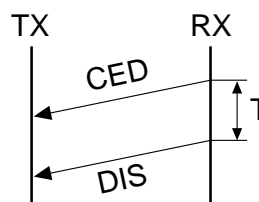
### SW-A2 No. 8 CNG transmission

When set to "0", this model allows CNG transmission by pressing the Start key in the key pad dialing mode. When set to "1", CNG transmission in the key pad dialing mode cannot be performed. In either case, CNG transmission can be performed in the auto dial mode.

### SW-A3 No. 1, No. 2 CED tone signal interval

For international communication, the 2100Hz CED tone may act as an echo suppression switch, causing a communication problem.

Though SW-A3 No. 1 and No. 2 are normally set to 0, it should be changed this time between the CED tone signal to eliminate the communication problem caused by echo.



### SW-A3 No. 3 MR Coding

Used to select the MR coding enable or disable.

### SW-A3 No. 4 ~ No. 8 Reserved

Set to "0".

### SW-A4 No. 1 ~ No. 5 Signal transmission level

Used to control the signal transmission level in the range of -0dB to -31dB.

The factory setting is at -11dB (MODEM output).

### SW-A4 No. 6 Protocol monitor (Error print)

If set to "1", protocol is printed at communication error.

### SW-A4 No. 7 Protocol monitor

Normally set to "0". If set to "1", communication can be checked, in case of trouble, without using a G3 tester or other tools.

When communication FSK data transmission or reception is made, the data is taken into the buffer. When communication is finished, the data is analyzed and printed out. When data is received with the line monitor (SW-A4 No. 8) set to "1" the reception level is also printed out.

### SW-A4 No. 8 Line monitor

Normally set to "0". If set to "1", the transmission speed and the reception level are displayed on the LCD. Used for line tests.

### SW-A5 No. 1, No. 2 Digital line equalization setting (Reception)

Line equalization when reception is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

### SW-A5 No. 3, No. 4 Reserved

Set to "0".

### SW-A5 No. 5, No. 6 Digital cable equalizer setting (Reception for Caller ID)

Line equalization when reception for CALLER ID is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

### SW-A5 No. 7 Error criterion

Used to select error criterion for sending back RTN when receiving image data.

### SW-A5 No. 8 Anti junk fax check

When using the Anti junk fax function, set to "1".

#### SW-A6 No. 1 Auto gain control (MODEM)

When this mode is enabled, if the reception signal level is under 31dBm. The modem itself controls the signal gain automatically.

#### SW-A6 No. 2 End buzzer

Setting this bit to 0 will disable the end buzzer (including the error buzzer/on-hook buzzer).

#### SW-A6 No. 3 Disconnect the line when DIS is received in RX mode

Bit1= 0: When DIS signal is received during RX mode, disconnected the line is immediately.

Bit1= 1: When DIS signal is received during RX mode, wait the next signal.

#### SW-A6 No. 4 Equalizer freeze control (MODEM)

This switch is used to perform reception operation by fixing the equalizer control of modem for the line which is always in unfavorable state and picture cannot be received.

\* Usually, the control is executed according to the state of line where the equalizer setting is changed always.

#### SW-A6 No. 5 Equalizer freeze control 7200BPS only

Setting which specifies SW-A3 No. 6 control only in the condition of 7200BPS modem speed.

#### SW-A6 No. 6 CNG transmission in manual TX mode

When set to "1", fax transmit the CNG signal in case of manual transmission mode (User press the START key after waiting the fax answering signal from handset or speaker).

#### SW-A6 No. 7 Initial compression scheme for sharp fax in TX mode

When set to "0", if the other fax is Sharp model, fax transmit the document by H2 mode. When set to "1", even if the other fax is Sharp model, fax transmit the document by MR mode.

#### SW-A6 No. 8 Reserved

Set to "0".

#### SW-B1 No. 1 ~ No. 4 Reserved

Set to "0".

#### SW-B1 No. 5 ~ No. 8 Recall times

Choice is made as to how many redials there should be.

#### SW-B2 No. 1 Dialing pause (sec/pause)

Pauses can be inserted between telephone numbers of direct dial connection. Selection of 4 sec or 2 sec pause is available.

#### SW-B2 No. 2 Dial tone detection (before auto dial)

Used to set YES/NO of dial tone detection in auto dialing.

#### SW-B2 No. 3 Reserved

Set to "0".

#### SW-B2 No. 4 Busy tone detection (after auto dial)

Used to set YES/NO of busy tone detection after auto dialing.

#### SW-B2 No. 5 ~ No. 7 Reserved

Set to "0".

#### SW-B2 No. 8 PBX connection

Used to select according to the connected line: PBX (Private Branch Exchange).

#### SW-B3 No. 1, No. 2 PBX recall function (R key select)

Used to set the operation mode of PBX recall when the R key is pressed. Setting is made according to the type of PBX.

No. 1=1, No. 2=1: Time break recall (=Flash) is performed.

No. 1=1, No. 2=0: Earth recall is performed.

#### SW-B3 No. 3 Reserved

Set to "0".

#### SW-B3 No. 4, No. 5 PBX select

Used to select the operation mode of PBX recall in auto dialing.

No. 4=1, No. 5=1: Time break recall (=Flash) is performed before dialing.

No. 4=1, No. 5=0: Earth recall is performed before dialing.

No. 4=0, No. 5=0: The PBX ID digit is automatically added when dialing to external line. PBX ID is up to 3 digits and entered in Option settings mode.

#### SW-B3 No. 6 ~ No. 8 Reserved

Set to "0".

#### SW-B4 No. 1, No. 2 Reserved

Set to "0".

#### SW-B4 No. 3 Dial mode

When using the pulse dial, set to 0. When using the tone dial, set to 1.

#### SW-B4 No. 4 Pulse → Tone change function by ✕ key

When setting to 1, the mode is changed by pressing the ✕ key from the pulse dial mode to the tone dial mode.

#### SW-B4 No. 5, No. 6 Reserved

Set to "0".

#### SW-B4 No. 7 PBX type

Used to select type of PBX

"0": NORMAL

"1": ISDN

#### SW-B4 No. 8 Reserved

Set to "0".

#### SW-B5 No. 1 ~ No. 5 DTMF signal transmission level (Low)

The transmission level of DTMF signal is adjusted. (lower frequency)

00000: 0dBm

↓

11111: -15.5dBm (-0.5dBm x 31)

#### SW-B5 No. 6 ~ No. 8 Reserved

Set to "0".

#### SW-B6 No. 1 ~ No. 5 DTMF signal transmission level (High)

The transmission level of DTMF signal is adjusted. (higher frequency)

00000: 0dBm

↓

11111: -15.5 dBm (-0.5dBm x 31)

#### SW-B6 No. 6 ~ No. 8 Reserved

Set to "0".

#### SW-C1 No. 1, No. 2 Reading slice (Binary)

Used to determine the set value of reading density in standard/fine mode. The standard setting is "00" (Factory setting is "00")

#### SW-C1 No. 3, No. 4 Reading slice (Half tone)

Used to determine the set value of reading density in half tone mode. The standard setting is "00" (Factory setting is "00")

#### SW-C1 No. 5 Line density selection

Used to set the transmission mode which is automatically selected when the Resolution key is not pressed. In the copy mode, however, the fine mode is automatically selected unless the Resolution key is manually set to another mode.

#### SW-C1 No. 6 Half tone gray scale selection

Used to determine the reading gray scale in half tone mode.

When set to "0", gray scale is 64 levels.

When set to "1", gray scale is 16 levels.

#### **SW-C1 No. 7 MTF correction in half tone mode**

This allows selection of MTF correction (dimness correction) in the half tone mode.

When "NO" (=1) is selected, the whole image becomes soft and mild. This wording, however, clearness of characters will be reduced. Normally set to "YES" (=0).

#### **SW-C1 No. 8 Reserved**

Set to "0".

#### **SW-D1 No. 1 ~ No. 4 Number of rings for auto receive**

When the machine is set in the auto receive mode, the number of rings before answering can be selected. It may be set from one to four rings using a binary number. Since the facsimile telephone could be used as an ordinary telephone if the handset is taken off the hook, it should be programmed to the user's choice. If the soft switch was set to 1, direct connection is made to the facsimile. If a facsimile calling beep was heard when the handset is taken off the hook, press the START key and put the handset on the hook to have the facsimile start receiving. If it was set to 0 accidentally, receive ring is set to 1.

NOTE: If the machine is set to answer after a large number of rings, it may not be able to receive faxes successfully. If you have difficulty receiving faxes, reduce the number of rings to a maximum of 5.

#### **SW-D1 No. 5 Automatic switching manual to auto receive mode**

This soft switch is used to select whether the machine should switch to the auto receive mode after 5 rings in the manual receive mode or remain in the same way as SW-D1 No. 1, No. 2, No. 3 and No. 4 "0"1"0"1"(5 rings).

#### **SW-D1 No. 6 Reserved**

Set to "0".

#### **SW-D1 No. 7 CI detection**

Detection frequency of ring signal for auto reception is set. When set to 1, frequency is set to 13Hz or more.

#### **SW-D1 No. 8 Reserved**

Set to "0".

#### **SW-D2 No. 1 ~ No. 4 Reserved**

Set to "0".

#### **SW-D2 No. 5 Caller ID function**

Used for Caller ID function.

#### **SW-D2 No. 6, No.7 Reserved**

Set to "0".

#### **SW-D2 No. 8 Caller ID detect during CI off**

Detection of caller ID signal is performed as follows:

- 0 : First CI OFF only
- 1 : All of CI OFF

#### **SW-E1 No. 1 Tel/Fax Automatic switching mode**

Used to set automatic TEL/FAX switching mode or to set the normal fax mode.

#### **SW-E1 No. 2, No. 3 Pseudo ringing time at the tel/fax automatic switching mode**

Choice is made as to how long to rumble the dummy ringer on TEL/FAX automatic switching mode.

#### **SW-E1 No. 4 Number of CNG signal detection at the tel/fax automatic switching mode**

Used for detection of CNG in one tone or two tones in the TEL/FAX automatic switching mode.

#### **SW-E1 No. 5, No. 6 Reserved**

Set to "0".

#### **SW-E1 No. 7 Post answer tone (transmit in Tel/Fax mode)**

When set to "0", machine send the 800 Hz tones in TEL/FAX auto changeover mode.

#### **SW-E1 No. 8 Reserved**

Set to "0".

#### **SW-E2 No. 1 ~ No. 4 Pseudo ringer sound volume**

Used to adjust sound volume of pseudo ringer to the line (ring back tone) generated on selecting TEL/FAX. Setting is the reduce level from -5dBm output level.

#### **SW-E2 No. 5 ~ No. 8 Reserved**

Set to "0".

#### **SW-F1 No. 1, No. 2 DTMF detect time**

Used to set detect time of DTMF (Dual Tone Multi Frequency) used in remote reception (5 × × × ).

The longer the detect time is, the less the error detection is caused by noises.

#### **SW-F1 No. 3 Protection of remote reception (5 × × × ) detect**

Used to set the function of remote reception (5 × × × ). When set to "1", the remote reception function is disabled.

#### **SW-F1 No. 4 Remote reception with GE telephone**

(Corresponding to TEL made by GE) P. B. X.

"1": Compatible with TEL mode by GE

"0": Not compatible

- When sending (5 × × × ) for remote reception with a GE manufactured telephone remote reception may not take place because of special specifications in their DTMF. To overcome this, a soft SW is provided to change the modem setting to allow for remote reception.
- If this soft SW is set to "1", other telephone sets may be adversely affected.

#### **SW-F1 No. 5 ~ No. 8 Remote operation code figures by external TEL (0 ~ 9)**

Remote operation codes can be changes from 0 through 9. If set to greater than 9, it defaults to 9. The "5 × × × " is not changed.

Ex-7 × × × (Default: 5 × × × )

#### **SW-F2 No. 1 CNG detection in STAND-BY mode**

When setting to "1", the CNG signal detection function during standby stops.

#### **SW-F2 No. 2, No. 3 Number of CNG detect (AM mode)**

Used for detection of CNG in 1 to 4 pulses.

#### **SW-F2 No. 4, No. 5 Number of CNG (STAND-BY mode)**

Used for detection of CNG in 1 to 4 pulses.

#### **SW-F2 No. 6 ~ No. 8 Reserved**

Set to "0".

#### **SW-G1 No. 1 ~ No. 8 Reserved**

Set to "0".

#### **SW-G2 No. 1 ~ No. 8 Reserved**

Set to "0".

#### **SW-G3 No. 1 ~ No. 8 Reserved**

Set to "0".

#### **SW-H1 No. 1 ~ No. 3 Reserved**

Set to "0".

#### **SW-H1 No. 4 Busy tone continuous sound detect time**

Set detecting time busy tone continuous sound for 5 seconds or as is PTT.

#### **SW-H1 No. 5 Busy tone detect continuation sound during OGM**

Used to detect the continuous tone of specific frequency during OGM output.

**SW-H1 No. 6 Busy tone detect continuation sound detect (during ICM: for internal A.M.)**

Used to select detection of the continuous sound of certain frequency.

**SW-H1 No. 7 Busy tone detect intermittent sound during OGM**

Used to detect the intermittent tone of specific frequency during OGM output.

**SW-H1 No. 8 Busy tone detect intermittent sound detect (during ICM: for internal A.M.)**

Used to select detection of the intermittent sound of certain frequency.

**SW-H2 No. 1, No. 2 Busy tone detection pulse number**

Used to set detection of Busy tone intermittent sounds.

**SW-H2 No. 3 Fax switching when A.M. full**

If the answering machine's memory (tape) is full and there is no response, the machine automatically switches to Fax reception.

**SW-H2 No. 4 ~ No. 6 Reserved**

Set to "0".

**SW-H2 No. 7 AM OGM announce only mode**

If this switch is set to 1, the machine is not recording ICM. (disconnect the line after OGM output)

**SW-H2 No. 8 Reserved**

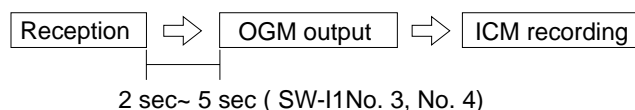
Set to "0".

**SW-I1 No. 1, No. 2 ICM recording time**

Used to select the incoming message recording time among 15sec/30sec/60sec/4min.

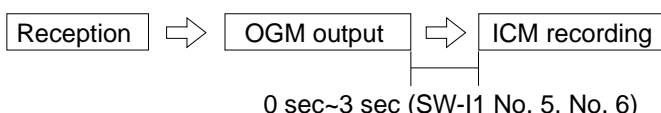
**SW-I1 No. 3, No. 4 A.M. quiet time 1**

Used to select four kinds of no sound time (2 sec ~ 5 sec) after reception in the T.A.D. mode until OGM is output.



**SW-I1 No. 5, No. 6 A.M. quiet time 2**

Used to select four kinds of no sound time (0 sec ~ 3 sec) after OGM output in the T.A.D. mode until ICM recording is started.



**SW-I1 No. 7 Key input buzzer on/off switch (Two way recording mode)**

Used to turn ON/OFF key input buzzer in the TWO-WAY recording mode.

**SW-I1 No. 8 Reserved**

Set to "0".

**SW-I2 No. 1 ~ No. 5 A.M. quiet detect time**

Used to set no sound time (0 sec ~ 32 sec) during the T.A.D. mode operation.

**SW-I2 No. 6, No. 7 Reserved**

Set to "0".

**SW-I2 No. 8 Alarm during two way alarm**

When set to "1", alarm sound is given to remote side during two way recording.

**SW-I3 No. 1 Max OGM record time**

Used to select the maximum OGM recording time (1=15sec, 0=60sec).

**SW-I3 No. 2 Reserved**

Set to "0".

**SW-I3 No. 3 Two way record function**

If this switch is set to "1", machine doesn't work two way recording function.

**SW-I3 No. 4 Toll saver**

Used to turn on the toll saver function. If it is off, the reception frequency in the AM mode is identical with that in the FAX mode.

**SW-I3 No. 5 FAX reception in case of detecting no sound detect after ICM recording**

If this switch is set to "0", machine doesn't change to FAX reception mode when detect no sound in ICM recording.

**SW-I3 No. 6, No. 7 Reserved**

Set to "0".

**SW-I3 No. 8 Transfer dial recall**

If this switch is set to "1", machine disable redial in Transfer function.

**SW-I4 No. 1 ~ No. 4 AGC maximum gain (Line) (10~25dB)(1dB step)**

The AGC Maximum Gain limits the gain applied by the AGC. Messages with average energy below the AGC Energy Reference Level will have their average energy level increased by no more than the AGC Maximum Gain. The AGC Maximum Gain should average energy of the message with the lowest average energy to the AGC Energy Reference Level.

**SW-I4 No. 5 ~ No. 8 AGC maximum gain (Mic) (10~25dB)(1dB step)**

The AGC Maximum Gain limits the gain applied by the AGC. Messages with average energy below the AGC Energy Reference Level will have their average energy level increased by no more than the AGC Maximum Gain. The AGC Maximum Gain should average energy of the message with the lowest average energy to the AGC Energy Reference Level.

**SW-I5 No. 1 ~ No. 4 AGC eref access code (Line) (-0~-30dB)(2dB step)**

The AGC Energy Reference Level controls the playback level. Any message having average speech energy above the energy reference level has its playback level attenuated, and any level has its playback level increased. If the playback level is too high (low), then decreasing (increasing) the AGC energy Reference level will achieve the desired level.

**SW-I5 No. 5 ~ No. 8 AGC eref access code (Mic) (-0~-30dBm)(2dB step)**

The AGC Energy Reference Level controls the playback level. Any message having average speech energy above the energy reference level has its playback level attenuated, and any level has its playback level increased. If the playback level is too high (low), then decreasing (increasing) the AGC energy Reference level will achieve the desired level.

**SW-I6 No. 1 ~ No. 4 AGC gain adaptation threshold (Line)**

The AGC adjusts the amount of gain applied to the incoming message only when the average energy exceeds the AGC Gain Adaptation Threshold. The AGC Gain Adaptation Threshold prevents message background noise from corrupting the gain provided that the AGC Gain Adaptation Threshold is greater than the background noise energy. In the event that a message has background noise energy greater than the AGC Gain Adaptation Threshold, the AGC Gain can be no greater than AGC Maximum Gain. Note that the AGC Gain Adaptation Threshold must always be greater than the RPACS VOX Turn-On Threshold.

**SW-I6 No. 5 ~ No. 8 AGC gain adaptation threshold (Mic)**

The AGC adjusts the amount of gain applied to the incoming message only when the average energy exceeds the AGC Gain Adaptation Threshold. The AGC Gain Adaptation Threshold prevents message background noise from corrupting the gain provided that the AGC Gain Adaptation Threshold is greater than the background noise energy. In the event that a message has background noise energy greater than the AGC Gain Adaptation Threshold, the AGC Gain can be no greater than the AGC Maximum Gain. Note that the AGC Gain Adaptation Threshold must always be greater than the RPACS VOX Turn-On Threshold.



**SW-I7 No. 1, No. 2 AGC slew rate (Line)**

The AGC Slew Rate controls convergence of the message playback level to the desired playback level. A large slew rate will allow faster convergence and a small slew rate will allow slower convergence.

**SW-I7 No. 3, No. 4 AGC slew rate (Mic)**

The AGC Slew Rate controls convergence of the message playback level to the desired playback level. A large slew rate will allow faster convergence and a small slew rate will allow slower convergence.

**SW-I7 No. 5 ~ No. 8 Reserved**

Set to "0".

**SW-J1 No. 1 Activity report print**

This soft switch is used to select: whether or not to print out the activity report when the memory is full. An activity report can be printed when the following key entry command is made.

"FUNCTION", "2", "#", "START"

After producing the activity report, all the data in the memory will be cleared.

When the switch function is set to "0" (no), the data in the memory will be deleted from the oldest as it reaches the maximum memory capacity.

**SW-J1 No. 2 Total communication hours and pages print**

Used to make a choice of whether the total communication time and pages are recorded in the activity report.

**SW-J1 No. 3 Sender's phone number setting**

Used to make a choice of whether the registered sender's phone number can be changed or not. If the switch is set to "1", new registration of the sender's phone number is disabled to prevent accidental wrong input.

**SW-J1 No. 4, No. 5 Reserved**

Set to "0".

**SW-J1 No. 6 Summer time setting**

Used to set YES/NO of automatic clock adjustment for European summer time.

**SW-J1 No. 7, No. 8 Ringer volume**

Used to adjust ringing volume.

**SW-J2 No. 1, No. 2 Reserved**

Set to "0".

**SW-J2 No. 3 Polling key**

If this switch is set to 1, the last of Rapid key works as polling key.

**SW-J2 No. 4, No. 5 Reserved**

Set to "0".

**SW-J2 No. 6 ~ No. 8 Speaker volume (5 stages)**

Used to adjust sound volume from a speaker.

**SW-J3 No. 1 Automatic cover sheet**

The machine automatically generates a cover sheet and sends it as the last page of each transmission.

**SW-J3 No. 2 ~ No. 4 Communication result printout (Transaction report)**

Every communication, the result can be output. As usual, it is set to print the timer sending communication error alone. If No. 2: 0 No. 3: 1 No. 4: 0 are set, printing is always on (printed even if it is normally ended).

000: Error, timer and memory sending/receiving

001: Sending

010: Continuous printing

011: Not printed

100: Communication error

**SW-J3 No. 5 ~ No. 8 Reserved**

Set to "0".

**SW-K1 No. 1 Entering DIAG mode by pressing SPEED key**

A bit which is used in the production process only. When the SPEED key is pressed, the switch is changed from the stand-by state to the DIAG mode.

**SW-K1 No. 2 Reserved**

Set to "0".

**SW-K1 No. 3 ~ No.8 OGM/ICM output level**

Used to control OGM and ICM output level.

**SW-L1 No. 1 ~ No. 4 Reserved**

Set to "0".

**SW-L1 No. 5 Cut off mode (COPY mode)**

Whether the excessive part is printed on the next recording paper or discarded is selected to copy a document which is longer than the recording paper.

**SW-L1 No. 6 A4 Paper enable**

The use of recording paper of A4 is enabled.

**SW-L1 No. 7 LEGAL and LETTER paper enable**

The use of recording paper of LEGAL and LETTER is enabled.

**SW-L1 No. 8 2 IN 1 mode**

A function to print transmitted data of two pages on one sheet.

**SW-L2 No. 1, No. 2 Paper set size**

At present size of the recording paper.

**SW-L2 No. 3 Automatic reduce of receive**

If set to 1, it is reduced automatically when receiving.

**SW-L2 No. 4 Print contrast**

0: Normal.

1: Light

**SW-L2 No. 5 Reception reduction ratio in case of memory full**

This model is designed so that the print is started according to the setting of SW-L2 No.3 when reception of one page is completed. However, if the memory is filled with data before completion of reception of one page, the print is started with the reduction ratio which is set with this switch.

**SW-L2 No. 6 ~ No. 8 Reserved**

Set to "0".

**SW-M1 No. 1 ~ No. 8 Reserved**

Set to "0".

**SW-M2 No. 1 ~ No. 8 Reserved**

Set to "0".

## [3] Troubleshooting

Refer to the following actions to troubleshoot any of the problems mentioned in 1-4.

[1] A communication error occurs.

[2] Image distortion produced.

[3] Unable to do overseas communication.

[4] Communication speed slow due to FALLBACK.

- Increase the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5.  
May be used in case [1] [2] [3].
- Decrease the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [3].

- Apply line equalization SOFT SWITCH A5-1, 2.  
May be used in case [1] [2] [3] [4].
- Slow down the transmission speed SOFT SWITCH A2-1, 2, 3, 4. May be used in case [2] [3].
- Replace the TEL/LIU PWB.  
May be used in all cases.
- Replace the control PWB.  
May be used in all cases.

\* If transmission problems still exist on the machine, use the following format and check the related matters.

TO: \_\_\_\_\_ ATT: \_\_\_\_\_ Ref.No.: \_\_\_\_\_  
CC: \_\_\_\_\_ ATT: \_\_\_\_\_ Date: \_\_\_\_\_  
FM: \_\_\_\_\_ Dept: \_\_\_\_\_  
Sign: \_\_\_\_\_

***** Facsimile communication problem *****				Ref.No.:																						
From: Mr.		Fax Tel No.:		Date:																						
Our customer	Name			Tel No.																						
	Address			Fax No.																						
	Contact person			Model name																						
Other party	Name			Tel No.																						
	Address			Fax No.																						
	Contact person			Model name																						
Problem mode	Line: Domestic / international		Model: G3	Phase: A, B, C, D.																						
	Reception / Transmission		Automatic reception / Manual reception																							
			Automatic dialing / Manual dialing / Others																							
Frequency:		%	ROM version:																							
Confirmation item				Please mark problem with an X.																						
				No problem is: 0.																						
				<table border="1"> <thead> <tr> <th>A1</th> <th>A2</th> <th>B1</th> <th>B2</th> <th>C1</th> <th>C2</th> <th>D1</th> <th>D2</th> <th>E1</th> <th>E2</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			A1	A2	B1	B2	C1	C2	D1	D2	E1	E2										
				A1	A2	B1	B2	C1	C2	D1	D2	E1	E2													
Transmission level setting is ( ) dB at our customer																										
Transmission level ( ) dBm																										
			Reception level ( ) dBm																							
			By level meter at B1 and B2																							
Comment																										
Countermeasure																										
**** Please attach the G3 data and activity report on problem. ****																										

\* Please complete this report before calling the "TAC" hotline if problem still occurs.

## [4] Error code table

### 1. Communication error code table

#### G3 Transmission

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSF, DIS	Cannot recognize DCS signal by echo etc. Cannot recognize NSS signal (FIF code etc)
2	CFR	Disconnects line during reception (carrier missing etc)
3	FTT	Disconnects line by fall back
4	MCF	Disconnects line during reception of multi page Cannot recognize NSS, DCS signal in the case of mode change
5	PIP or PIN	The line is hung up without replying to telephone request from the receiving party.
6	RTN or RTP	Cannot recognize NSS, DCS signal after transmit RTN or RTP signal.
7	No signal or DCN	No response in receiver side or DCN signal received* (transmitter side)
8	—	Owing to error in some page the error could not be corrected although the specified number of error retransmissions were attempted.
11	—	Error occurred after or while reception by the remote (receiving) machine was revealed to be impossible.
12	—	Error occurred just after fallback.
13	—	Error occurred after a response to retransmission end command was received.

#### G3 Reception

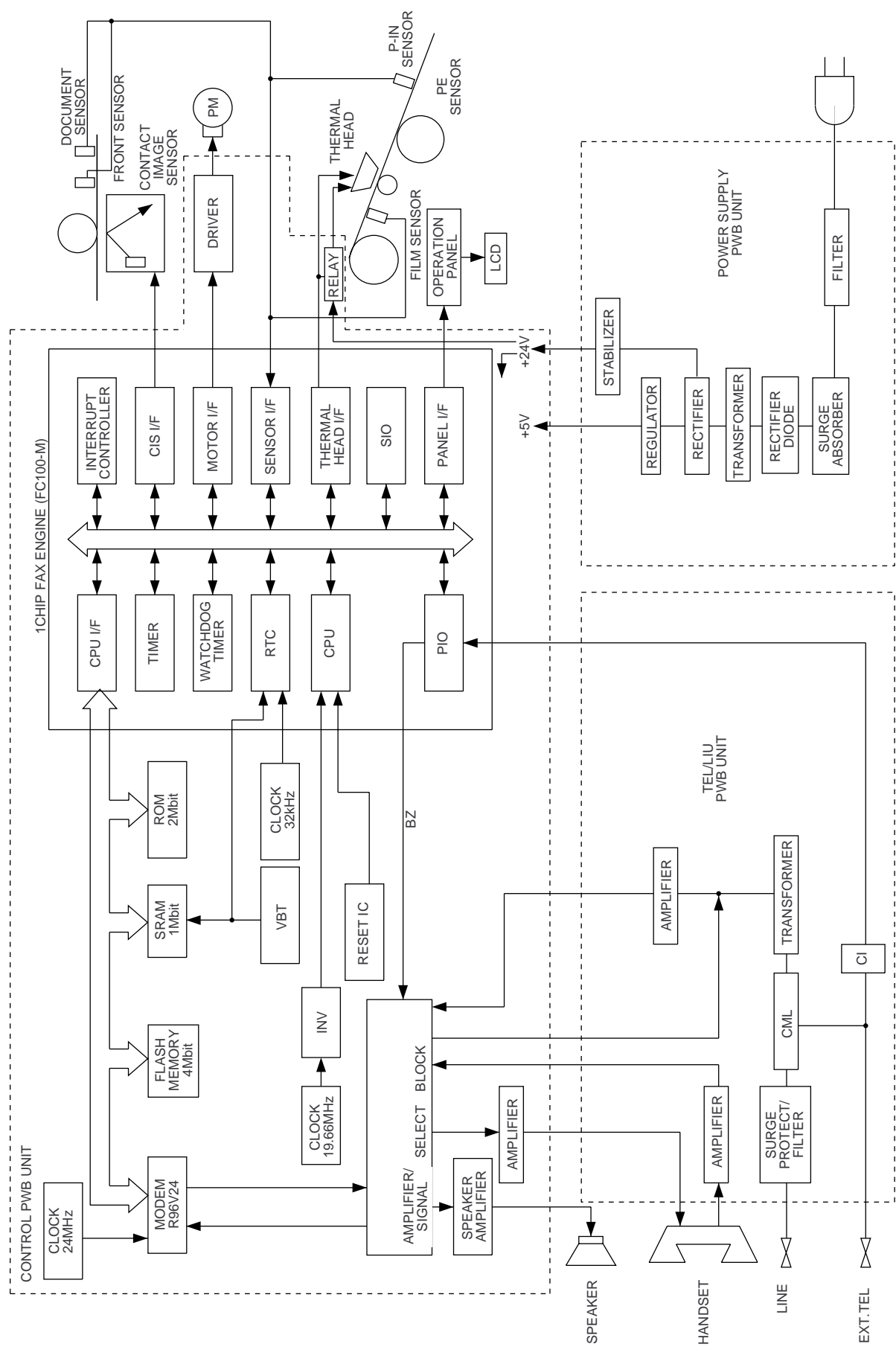
Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSS, DCS	Cannot recognize CFR or FTT signal Disconnects line during transmission (line error)
2	NSC, DTC	Cannot recognize NSS signal (FIF code etc)
3	EOP	Cannot recognize MCF, PIP, PIN, RTN, RTP signal
4	EOM	Cannot recognize MCF, PIP, PIN, RTN, RTP signal in the case of mode change
5	MPS	The line is hung up without replying to communication request.
6	PR1-Q	Cannot recognize PIP, PIN signal in the case of TALK request
7	No signal or DCN	No response in transmitter (cannot recognize DIS signal) or DCN signal received* (receiver side)
8	—	Error occurred upon completion of reception of all pages.
9	—	Error occurred when mode was changed or Transmission/Reception switching was performed.
10	—	Error occurred during partial page or physical page reception.
11	—	Error occurred after or during inquiry from the remote (transmitting) machine as to whether reception is possible or not.
12	—	Error occurred during or just after fallback.
13	—	Error occurred after the retransmission end command was received.



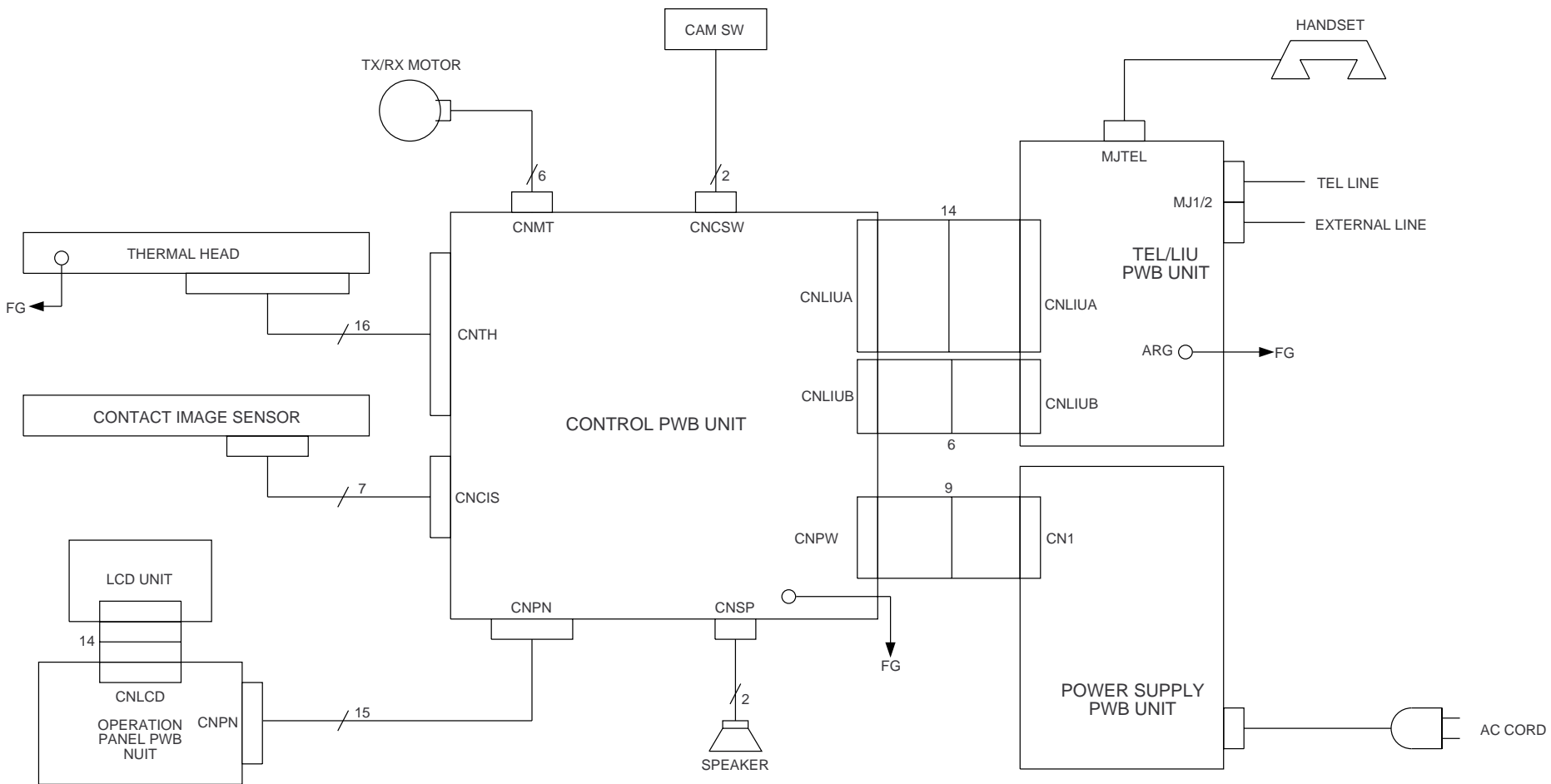
MEMO

CHAPTER 4. DIAGRAMS

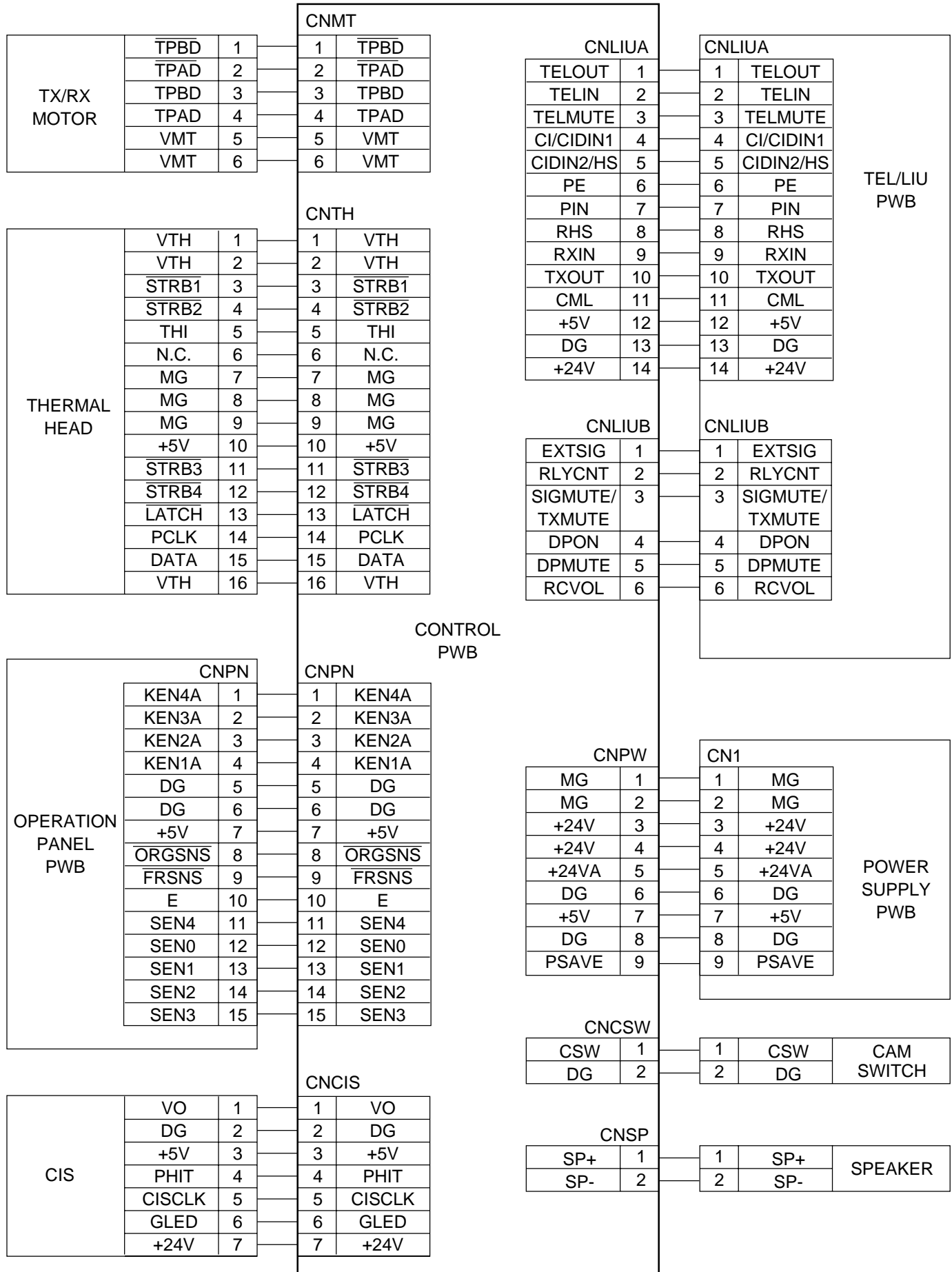
[1] Block diagram



## [2] Wiring diagram



### [3] Point- to-point diagram



## CHAPTER 5. CIRCUIT DESCRIPTION

### [1] Circuit description

#### 1. General description

The compact design of the control PWB is obtained by using ROCKWELL (CONEXANT) fax engine in the main control section and high density printing of surface mounting parts. Each PWB is independent according to its function as shown in Fig. 1.

#### 2. PWB configuration

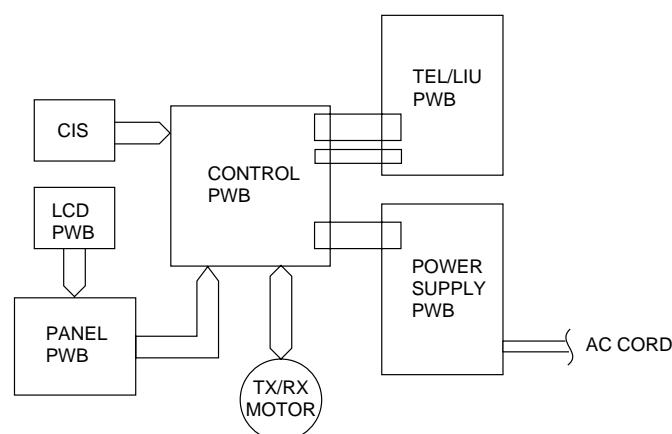


Fig. 1

##### 1) Control PWB

The control PWB controls peripheral PWBs, mechanical parts, transmission, and performs overall control of the unit.

This machine employs a 1-chip modem (R96V24) which is in-stalled on the control PWB.

##### 2) TEL/LIU PWB

This PWB controls connection of the telephone line to the unit.

##### 3) Power supply PWB

This PWB provides voltages of +5V and +24V to the other PWBs.

##### 4) Panel PWB

The panel PWB allows input of the operation keys.

##### 5) LCD PWB

This PWB controls the LCD display.

### 3. Operational description

Operational descriptions are given below:

- Transmission operation

When a document is loaded in standby mode, the state of the document sensor is sensed via the 1 chip fax engine (FC100M). If the sensor signal was on, the motor is started to bring the document into the standby position. With depression of the START key in the off-hook state, transmission takes place.

Then, the procedure is sent out from the modem and the motor is rotated to move the document down to the scan line. In the scan processor, the signal scanned by the CIS is sent to the internal image processor and the AD converter to convert the analog signal into binary data. This binary data is transferred from the scan processor to the image buffer within the RAM and encoded and stored in the transmit buffer of the RAM. The data is then converted from parallel to serial form by the modem where the serial data is modulated and sent onto the line.

- Receive operation

There are two ways of starting reception, manual and automatic. Depression of the START key in the off-hook mode in the case of manual receive mode, or CI signal detection by the LIU in the automatic receive mode.

First, the FC100M controls the procedure signals from the modem to be ready to receive data. When the program goes into phase C, the serial data from the modem is converted to parallel form in the modem interface of the 1 chip fax engine (FC100M) which is stored in the receive buffer of the RAM. The data in the receive buffer is decoded software-wise to reproduce it as binary image data in the image buffer. The data is DMA transferred to the recording processor within the FC100M which is then converted from parallel to serial form to be sent to the thermal head. The data is printed line by line by the FC100M which is assigned to control the motor rotation and strobe signal.

- Copy operation

To make a copy on this facsimile, the COPY key is pressed when the machine is in stand-by with a document on the document table and the telephone set is in the on-hook state.

First, depression of the COPY key advances the document to the scan line. Similar to the transmitting operation, the image signal from the CIS is converted to a binary signal in the DMA mode via the 1 chip fax engine (FC100M) which is then sent to the image buffer of the RAM. Next, the data is transferred to the recording processor in the DMA mode to send the image data to the thermal head which is printed line by line. The copying takes place as the operation is repeated.

## [2] Circuit description of control PWB

### 1. General description

Fig. 2 shows the functional blocks of the control PWB, which is composed of 5 blocks.

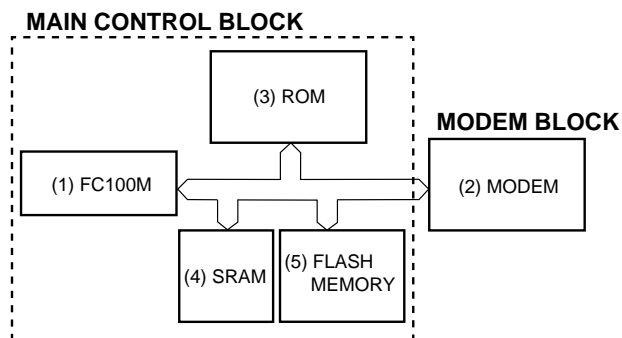


Fig. 2 Control PWB functional block diagram

### 2. Description of each block

#### (1) Main control block

The main control block is composed of ROCKWELL (CONEXANT) 1 chip fax engine (FC100M), ROM (2Mbit), SRAM (1Mbit), FLASH MEMORY (4Mbit) and Modem (R96V24).

Devices are connected to the bus to control the whole unit.

##### 1) FC100M (IC8) : pin-144 QFP (FAX CONTROLLER)

##### 2) R96V24 (IC5) : pin-100 QFP (MODEM)

The FAXENGINE Integrated Facsimile Controllers.

FC100M, contains an internal 8 bit microprocessor with an external 2 Mbyte address space and dedicated circuitry optimized for facsimile image processing and facsimile machine control and monitoring.

##### 3) 27C020 (IC4): pin-32 DIP (ROM)

EPROM of 2Mbit equipped with software for the main CPU.

##### 4) W24010S-70LE (IC1): pin-32 SOP (SRAM)

Line memory for the main CPU system RAM area and coding/decoding process. Used as the transmission buffer.

Memory of recorded data such as daily report and auto dials. When the power is turned off, this memory is backed up by the lithium battery.

##### 5) KM29W040T (IC2): pin-44 TSOP (FLASH MEMORY)

A 4 Mbit NAND FLASH MEMORY to store the voice and image data when using memory functions.

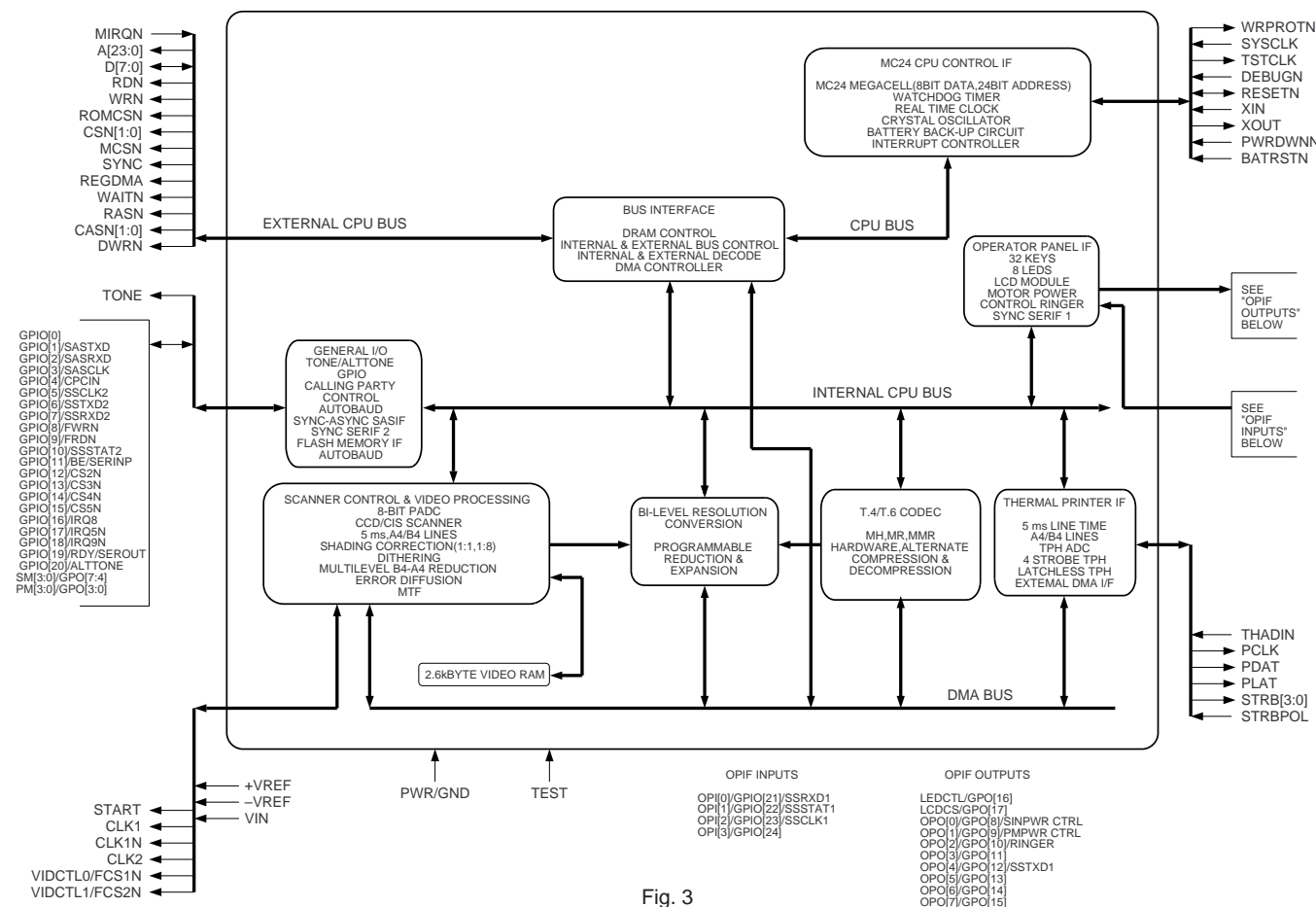


Fig. 3

**FC100M (IC8) Terminal descriptions**

Pin Name	Pin No.	I/O	Input Type	Output Type	Pin Description (Note: Active low signals have an "n" pin name ending.)
<b>CPU Control Interface</b>					
MIRQn	135	I	HU	–	Modem interrupt, active low. (Hysteresis In, Internal Pullup.)
SYSCCLK	133	I	H	–	System clock. (Hysteresis In.)
TSTCLK	130	O	–	123XT	Test clock.
<b>Bus Control Interface</b>					
A[23:0]	[1:6][8:13] [15:20][22:27]	O	TU	123XT	Address bus (24-bit).
D[7:0]	[136:139] [141:144]	I/O	TU	123XT	Data bus (8-bit).
RDn	128	O	–	123XT	Read strobe.
WRn	127	O	–	123XT	Write strobe.
ROMCSn	120	O	–	123XT	ROM chip select.
CS1n	122	O	–	123XT	I/O chip select.
CS0n	57	O	–	123XT	SRAM chip select. (Battery powered.)
MCSn	121	O	–	123XT	Modem chip select.
SYNC	126	O	–	123XT	Indicates CPU op code fetch cycle (active high).
REGDMA	124	O	–	123XT	Indicates REGSEL cycle and DMA cycle.
WAITn	125	O	–	123XT	Indicates current TSTCLK cycle is a wait state or a halt state.
RASn	113	O	–	123XT	DRAM row address select. (Battery powered.)
CAS[1:0]n	[111:112]	O	–	123XT	DRAM column address select. (Battery powered.)
DWRn	109	O	–	123XT	DRAM write. (Battery powered.)
<b>Prime Power Reset Logic and Test</b>					
DEBUGn	129	I	HU	–	External non-maskable input (NMI).
RESETn	131	I/O	HU	2XO	FC100/FC200 Reset.
TEST	58	I	C	–	Sets Test mode (Battery powered).
<b>Battery Power Control and Reset Logic</b>					
XIN	59	I	OSC	–	Crystal oscillator input pin.
XOUT	60	O	–	OSC	Crystal oscillator output pin.
PWRDWNn	62	I	H	–	Used by external system to indicate -to FC100/FC200 - loss of prime power. (Results in NMI)
BATRSTn	61	I	H	–	Battery power reset input.
WRPROTn	110	O	–	1XC	(Battery powered.) Write protect during loss of VDD power. NOTE: The functional logic is powered by battery power, but the output drive is powered by DRAM battery power.
<b>Scanner Interface</b>					
START	101	O	–	2XS	Scanner shift gate control.
CLK1	100	O	–	2XS	Scanner clock.
CLK1n	99	O	–	2XS	Scanner clock-inverted.
CLK2	98	O	–	2XS	Scanner reset gate control (or clock for CIS scanner).
FCS1n/VIDCTL0	96	O	–	2XT	Flash memory chip select or Video Control signal.
FCS2n/VIDCTL1	97	O	–	2XT	Flash memory chip select or Video Control signal.
<b>Printer Interface</b>					
PCLK/DMAACK	29	O	–	3XC	Thermal Print Head (TPH) clock, or external DMAACK.
PDAT	30	O	–	2XP	Serial printing data (to TPH).
PLAT	31	O	–	3XP	TPH data latch.
STRB[3:0]	[33:36]	O	–	1XP	Strobe signals for the TPH.
STRBPOL/DMAREQ	37	I	C	–	Sets strobe polarity, active high/low or external DMA request.
<b>Operator Panel Interface</b>					
OPO[0]/GPO[8]/ SMPWRCTRL	47	O	–	2XL	Keyboard/LED strobe [0] or GPO[8] or Scan Motor Power Control
OPO[1]/GPO[9]/ PMPWRCTRL	46	O	–	2XL	Keyboard/LED strobe [1] or GPO[9] or Print Motor Power Control
OPO[2]/GPO[10]/ RINGER	44	O	–	2XCT	Keyboard/LED strobe [2] or GPO[10] or RINGER
OPO[3]/GPO[11]	43	O	–	2XL	Keyboard/LED strobe [3] or GPO[11]
OPO[4]/GPO[12]/ SSTXD1	42	O	–	2XL	Keyboard/LED strobe [4] or GPO[12] or SSTXD1 (for SSIF1)
OPO[5]/GPO[13]	40	O	–	2XL	Keyboard/LED strobe [5] or GPO[13]
OPO[6]/GPO[14]	39	O	–	2XL	Keyboard/LED strobe [6] or GPO[14]
OPO[7]/GPO[15]	38	O	–	2XL	Keyboard/LED strobe [7] or GPO[15]
OPI[0]/GPIO[21]/ SSRXD1	52	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [0] or GPIO[21] or SSRXD1 (for SSIF1)
OPI[1]/GPIO[22]/ SSSTAT1	51	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [1] or GPIO[22] or SSSTAT1 (for SSIF1)

**FC100M (IC8) Terminal descriptions**

Pin Name	Pin No.	I/O	Input Type	Output Type	Pin Description
Operator Panel Interface					
OPI[2]/GPIO[23]/SSCLK1	50	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [2] or GPIO[23] or SSCLK1 (for SSIF1)
OPI[3]/GPIO[24]	49	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [3] or GPIO[24]
LEDCTL	55	O	–	4XC	Indicates outputs OPO[7:0] are for LEDs.
LCDCS	54	O	–	1XC	LCD chip select.
General Purpose I/O					
GPIO[0]	94	I/O	H	2XC	(Hysteresis In) GPIO[0].
GPIO[1]/SASTXD	93	I/O	H	2XC	(Hysteresis In) GPIO[1] or SASTXD (for SERIF).
GPIO[2]/SASRXD	92	I/O	H	2XC	(Hysteresis In) GPIO[2] or SASRXD (for SERIF).
GPIO[3]/SASCLK	91	I/O	H	2XC	(Hysteresis In) GPIO[3] or SASCLK (for SERIF).
GPIO[4]/CPCIN	90	I/O	H	2XC	(Hysteresis In) GPIO[4] or Calling Party Control Input.
GPIO[5]/SSCLK2	89	I/O	H	2XC	(Hysteresis In) GPIO[5] or SSCLK2 (for SSIF2).
GPIO[6]/SSTXD2	87	I/O	H	2XC	(Hysteresis In) GPIO[6] or SSTXD2 (for SSIF2).
GPIO[7]/SSRXD2	86	I/O	H	2XC	(Hysteresis In) GPIO[7] or SSRXD2 (for SSIF2).
GPIO[8]/FWRn	85	I/O	H	2XC	(Hysteresis In) GPIO[8] or flash write enable signal for NAND-type flash memory.
GPIO[9]/FRDn	84	I/O	H	2XC	(Hysteresis In) GPIO[9] or flash read enable signal for NAND-type flash memory.
GPIO[10]/SSSTAT2	83	I/O	H	2XC	(Hysteresis In) GPIO[10] or SSSTAT2 (for SSIF2).
GPIO[11]/BE/SERINP	82	I/O	H	1XC	(Hysteresis In) GPIO[11] or bus enable or serial port data input for autobaud detection.
GPIO[12]/CS[2]n	80	I/O	H	2XC	(Hysteresis In) GPIO[12] or I/O chip select [2].
GPIO[13]/CS[3]n	79	I/O	H	2XC	(Hysteresis In) GPIO[13] or I/O chip select [3].
GPIO[14]/CS[4]n	78	I/O	H	2XC	(Hysteresis In) GPIO[14] or I/O chip select [4].
GPIO[15]/CS[5]n	77	I/O	H	2XC	(Hysteresis In) GPIO[15] or I/O chip select [5].
GPIO[16]/IRQ[8]	76	I/O	H	1XC	(Hysteresis In) GPIO[16] or external interrupt 8.
GPIO[17]/IRQ[5]n	75	I/O	H	1XC	(Hysteresis In) GPIO[17] or external interrupt 5.
GPIO[18]/IRQ[9]n	74	I/O	H	1XC	(Hysteresis In) GPIO[18] or external interrupt 9.
GPIO[19]/RDY/SEROUT	73	I/O	H	1XC	(Hysteresis In) GPIO[19] or ready signal or Serial port data output for autobaud detection.
GPIO[20]/ALTTONE	107	I/O	H	1XC	(Hysteresis In) GPIO[20] or ALTTONE.
Miscellaneous					
SM[3:0]/GPO[7:4]	[103:106]	O	–	1XC	Programmable: scan motor control pins or GPO pins.
PM[3:0]/GPO[3:0]	[115:118]	O	–	1XC	Programmable: print motor control pins or GPO pins.
TONE	119	O	–	1XC	Tone output signal.
Power, Reference Voltages, Ground					
-Vref/CLREF	66	I	-VR	–	Negative Reference Voltage for Video A/D or Reference Voltage for the Clamp Circuit.
ADXG	68	I	VXG	–	A/D Internal GND. (NOTE: This pin requires an external 0.22µF decoupling capacitor to ADGA.)
ADGA	69		VADG		A/D Analog Ground
ADVA	70		VADV		A/D Analog Power
ADGD	72		VADG		A/D Digital Ground
+Vref	71	I	+VR		Positive Reference Voltage for Video A/D.
VIN	67	I	VA	–	Analog Video A/D input.
THADI	65	I	TA	–	Analog Thermal A/D input.
Power and Ground					
VSS(12)	7,21,28,45,53,56,64,88,95,108,132,134				Digital Ground
VDD(8)	14,32,41,48,81,102,123,140				Digital Power
VBAT	63				Battery Power
VDRAM	114				DRAM Battery Power



## (2) Panel control block

The following controls are performed by the FC100M.

- Operation panel key scanning
- Operation panel LCD display

## (3) Mechanism/recording control block

- Recording control block diagram (1)

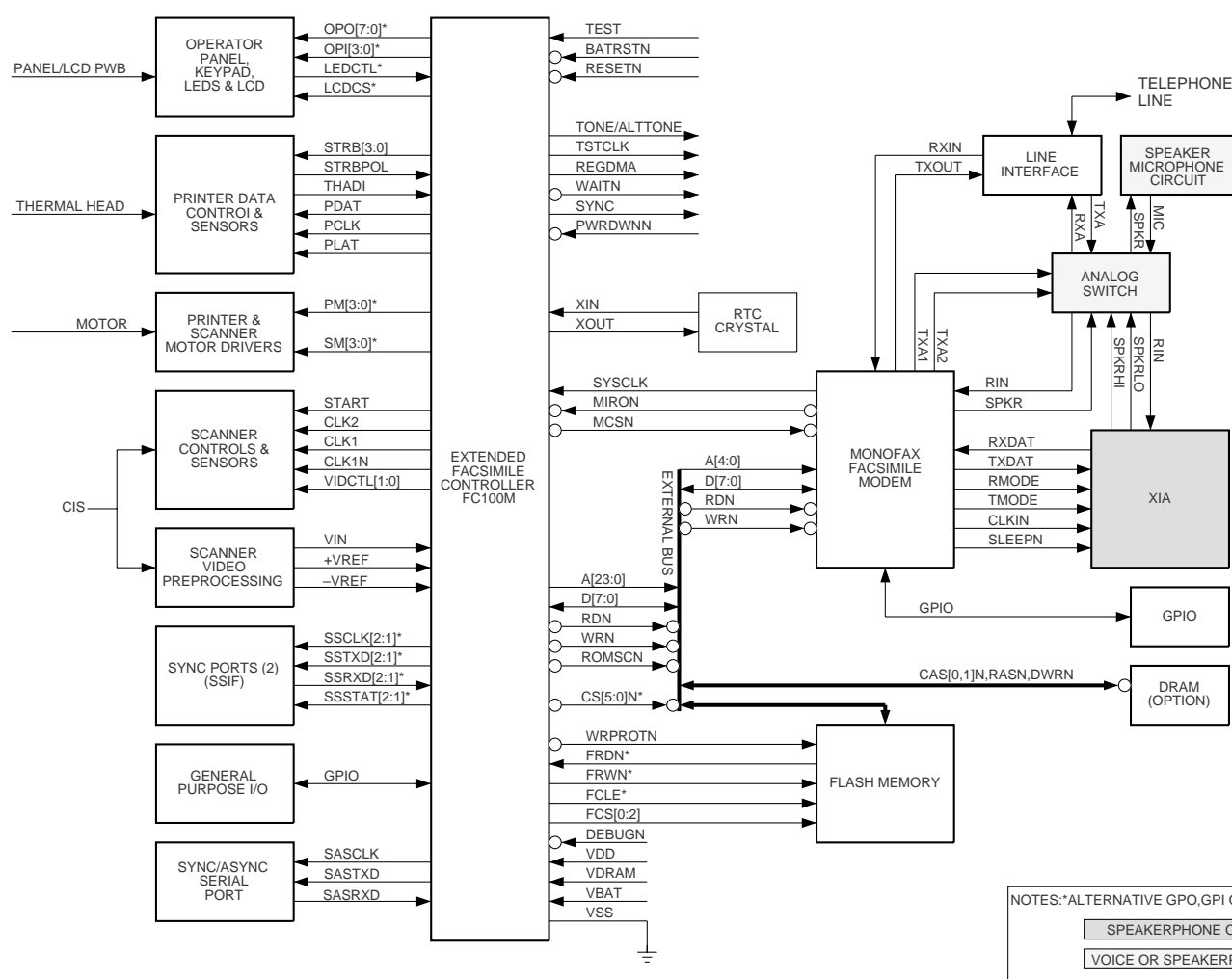


Fig. 4

#### (4) Modem (R96V24) block

##### INTRODUCTION

The ROCKWELL (CONEXANT) R96V24 MONOFAX® facsimile modem family provides 9600 bps half-duplex capability with options supporting DigiTalk™ voice and ADPCM audio codecs, DigiTalk™ full-duplex speakerphone, and V.23 full-duplex. The modem models are identified in Table 1-1.

These functions are supplied in a single VLSI device or two-device set (for speakerphone). The MDP (modem data pump) is packaged in a 100-pin PQFP. The MDP contains an internal integrated analog codec (IIA) and is pin-compatible with the R96V24 MONOFAX modems.

This device family enables cost-effective development of a common facsimile machine design with digital answering machine and/or full-duplex speakerphone.

The modem can operate at 9600, 7200, 4800, 2400, or 300 bps, and can perform HDLC framing per T.30 at all rates. A programmable DTMF detector, three programmable tone detectors, and Caller ID demodulator are provided.

The DigiTalk™ V24 voice coder/decoder (codec) compresses voice at an average rate of 2.9 kbps or at a fixed rate of 4.7 kbps with near toll quality playback. An average rate of 2.9 kbps provides 24 minutes of stored voice messages in 4 Mbits of memory. This voice codec allows the host controller to efficiently store and playback digital incoming messages (ICMs) and outgoing messages (OGMs).

The ADPCM audio codec compresses audio signals (e.g., music/voice) at 32 kbps or 24 kbps for highest fidelity coding and reproduction.

Selectable error correction coding allows storage in audio grade RAMs (ARAMs). Echo cancellation techniques employed during playback allow DTMF and tone detection during voice/audio codec operation to support user selectable features. The coder can record messages from either the IIA or XIA. Dual/single tone transmission is available when the decoder is disabled.

##### FEATURES

- Group 3 facsimile transmission/reception
  - ITU-T V.29, V.27 ter, T.30, V.21 Channel 2, T.4
  - HDLC framing at all speeds
  - Receive dynamic range: 0 dBm to –43 dBm
  - Automatic adaptive equalization
  - Fixed and programmable digital compromise equalization
- V.27 ter short train
- V.21 channel 2
  - DTMF detect and tone detect
- Caller ID reception
  - Compromise equalizer
- DigiTalk™ voice codec
  - 24 minutes of voice storage per 4 Mbit memory
  - Near toll quality voice recording and playback
  - Programmable AGCs
  - Error correction coding allows ARAM usage
  - DTMF detect, tone detect, and tone transmit
  - Pitch synchronized fast and slow playback
  - Near-end echo cancellation
- ADPCM audio codec
  - High fidelity recording and playback of audio signals
  - 32 kbps and 24 kbps
  - Programmable AGC
  - DTMF detect, tone detect, and tone transmit
  - Near-end echo cancellation
- 8-bit or 16-bit high quality audio mode transmission/reception

## R96V24 (IC5) Hardware Interface Signals

### Pin Signals – 100-Pin PQFP

Pin No.	Signal Name	I/O Type
1	RS4	IA
2	RS3	IA
3	RS2	IA
4	RS1	IA
5	RS0	IA
6	VDD1	PWR
7	D7	IA/OB
8	D6	IA/OB
9	D5	IA/OB
10	D4	IA/OB
11	D3	IA/OB
12	D2	IA/OB
13	D1	IA/OB
14	D0	IA/OB
15	WRITE	IA
16	DGND1	GND
17	RXOUT	MI
18	RMODE	MI
19	TSTROBE	MI
20	TRESET	MI
21	DGND A1	GND
22	NC	
23	TMODE	MI
24	TXDAT	MI
25	AVDD	PWR
26	TALK	OD
27	AGND1	GND
28	TXA1	O(DD)
29	TXA2	O(DD)
30	DGND A2	GND
31	NC	
32	NC	
33	NC	
34	NC	
35	VAA1	PWR
36	SLEEP	MI
37	AGND2	GND
38	RIN	I(DA)
39	VC	MI
40	VREF	MI
41	NC	
42	NC	
43	DGND A3	GND
44	SPKR	O(DF)
45	VAA2	PWR
46	OH	OD
47	POR	MI
48	CLKIN	MI
49	NC	
50	IACLK	MI
51	NC	
52	CS	IA
53	READ	IA
54	GPI2	IA
55	GPI3	IA
56	GPI4	IA
57	GPI5	IA
58	VDD2	PWR
59	GPI6	IA

Pin No.	Signal Name	I/O Type
60	GP17/RINGD	IA
61	GPO7	OB
62	GPO6	OB
63	GPO5	OB
64	GPO4	OB
65	GPO3	OB
66	DGND2	GND
67	CTS	OA
68	IRQ1	OC
69	GPO2	OB
70	GPO1	OB
71	GPO0	OB
72	RESET	OA
73	XTLI	I
74	XTLO	O
75	XCLK	OD
76	YCLK	OD
77	VDD3	PWR
78	IRQ2	OC
79	SR3IN	MI
80	DGND3	GND
81	DGND4	GND
82	SR4IN	MI
83	SR3OUT	MI
84	EYESYNC	OA
85	EYECLK	OA
86	IA1CLK	MI
87	SA1CLK	MI
88	SR1IO	MI
89	EYEXY	OA
90	SR4OUT	MI
91	NC	
92	RLSD	OA
93	DCLK	OA
94	EN85	IA
95	GPI0	IA
96	RTS	IA
97	DGND5	GND
98	GPI1	IA
99	TXD	IA
100	RXD	OA

#### Notes:

I/O type:

MI = Modem interconnect.

IA, IB, IC, ID = digital input (see Table 2-5).

OA, OB, OC, OD = digital output (see Table 2-5).

I(DA) = analog input (see Table 2-6).

O(DD), O(DF) = analog output (see Table 2-6).

NC = No external connection allowed.

## [3] Circuit description of TEL/LIU PWB

### (1) TEL/LIU block operational description

#### 1) Block diagram

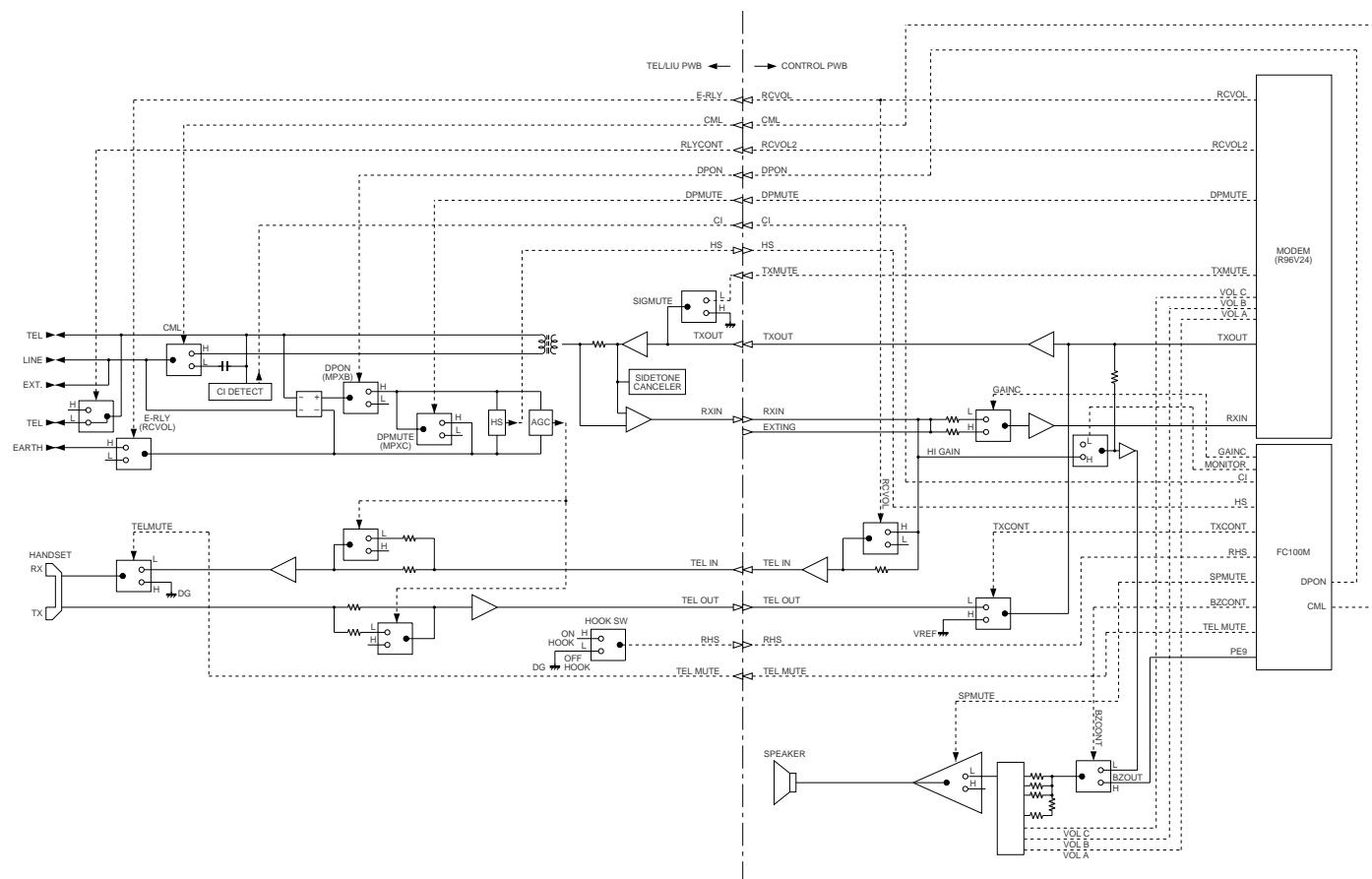


Fig. 5

#### 2) Circuit description

The TEL/LIU PWB is composed of the following 10 blocks.

1. Surge protection circuit
2. Noise filter
3. Dial pulse generation circuit
4. CML relay
5. Matching transformer
6. Hybrid circuit
7. Signal selection
8. Sensor circuit
9. CI detection circuit
10. Power supply and bias circuit

#### 3) Block description

##### 1. Surge Protection circuit

This circuit protects the circuit from the surge voltage occurring on the telephone line.

- The AR1, AR2 protects the circuit from the 425V or higher line surge voltages.

## 2. Noise filter

The noise filter comprises the RF choke coil, L6, L7 and L8.

## 3. Dial pulse generation circuit

The pulse dial generation circuit comprises the photo-coupler PC2, PC3, polarity guard REC1, and resistor R1.

The photo-coupler PC3 shunts the line current using the DP signal before transmitting the dial signal, then turns off the CML relay.

After the pulse dial signal is transmitted by turning on/off the DP signal, the CML relay is turned on again.

## 4. CML relay

The CML relay switches over connection to the matching transformer T1 while the FAX or built-in telephone is being used.

## 5. Matching transformer

The matching transformer performs electrical insulation from the telephone line and impedance matching for transmitting the TEL/FAX signal.

## 6. Hybrid circuit

The hybrid circuit performs 2-wire-to-4-wire conversion using the IC102 of operational amplifier, transmits the voice transmission signal to the line, and feeds back the voice signal to the voice reception circuit as the side tone.

## 8. Sensor circuit

For the recording paper sensor ( $\overline{PE}$ ), when there is recording paper, the photo transistor in the light receiving side is ON and the detection level is LOW. When there is no recording paper, the photo transistor in the light receiving side is OFF and the detection level is HIGH.

## 9. CI detection circuit

The CI detection circuit detects the CI signals. A CI signal, which is provided to the photo-coupler PC6 through the C3 (0.68  $\mu$ F), R3 (1 K), and ZD2 when the ring signal is inputted from the telephone line.

## 10. Power supply and bias circuits

The voltages of +5V and +24VA are supplied from the control PWB unit.

## 7. Signal selection

The following signals are used to control the transmission line of TEL/LIU signal. For details, refer to the signal selector matrix table.

[Control signals from output port]

Signal Name	Description																																																						
CML (The circuit is located in the TEL/LIU PWB.)	<u>Line connecting relay and DP generating relay</u> H: Line make L: Line break																																																						
SP MUTE	<u>Speaker tone mute control signal</u> H: Muting (Power down mode) L: Muting cancel (Normal operation)																																																						
TEL MUTE	<u>Handset reception mute control signal</u> H: Muting L: Muting cancel																																																						
VOL A VOL B VOL C (The circuit is located in the control PWB.)	<u>Speaker volume control signal.</u>																																																						
	VOL A VOL B VOL C matrix																																																						
	<table><tr><td>OUTPUT</td><td>VOL A</td><td>VOL B</td><td>VOL C</td><td>NEW R</td><td>OH-HOOK Receiving</td></tr><tr><td>X0</td><td>L</td><td>L</td><td>L</td><td>33K</td><td>—</td></tr><tr><td>X1</td><td>L</td><td>L</td><td>H</td><td>75K</td><td>HIGH</td></tr><tr><td>X2</td><td>L</td><td>H</td><td>L</td><td>150K</td><td>MIDDLE1</td></tr><tr><td>X3</td><td>L</td><td>H</td><td>H</td><td>300K</td><td>MIDDLE2</td></tr><tr><td>X4</td><td>H</td><td>L</td><td>L</td><td>510K</td><td>MIDDLE3</td></tr><tr><td>X5</td><td>H</td><td>L</td><td>H</td><td>470K</td><td>—</td></tr><tr><td>X6</td><td>H</td><td>H</td><td>L</td><td>750K</td><td>LOW</td></tr><tr><td>X7</td><td>H</td><td>H</td><td>H</td><td>100K</td><td>—</td></tr></table>	OUTPUT	VOL A	VOL B	VOL C	NEW R	OH-HOOK Receiving	X0	L	L	L	33K	—	X1	L	L	H	75K	HIGH	X2	L	H	L	150K	MIDDLE1	X3	L	H	H	300K	MIDDLE2	X4	H	L	L	510K	MIDDLE3	X5	H	L	H	470K	—	X6	H	H	L	750K	LOW	X7	H	H	H	100K	—
	OUTPUT	VOL A	VOL B	VOL C	NEW R	OH-HOOK Receiving																																																	
	X0	L	L	L	33K	—																																																	
	X1	L	L	H	75K	HIGH																																																	
	X2	L	H	L	150K	MIDDLE1																																																	
	X3	L	H	H	300K	MIDDLE2																																																	
	X4	H	L	L	510K	MIDDLE3																																																	
	X5	H	L	H	470K	—																																																	
	X6	H	H	L	750K	LOW																																																	
	X7	H	H	H	100K	—																																																	
	<table><tr><td>OUTPUT</td><td>RINGER</td><td>BUZZER</td><td>DTMF</td><td>ICM/OGM</td></tr><tr><td>X0</td><td>HIGH</td><td>—</td><td>—</td><td>HIGH</td></tr><tr><td>X1</td><td></td><td>—</td><td>—</td><td>MIDDLE1</td></tr><tr><td>X2</td><td>—</td><td>—</td><td>—</td><td>MIDDLE2</td></tr><tr><td>X3</td><td></td><td>—</td><td>—</td><td>MIDDLE3</td></tr><tr><td>X4</td><td>LOW</td><td></td><td>—</td><td>—</td></tr><tr><td>X5</td><td>—</td><td>FIXED</td><td>FIXED</td><td>LOW</td></tr><tr><td>X6</td><td></td><td>—</td><td>—</td><td>—</td></tr><tr><td>X7</td><td>MIDDLE</td><td>—</td><td></td><td>—</td></tr></table>	OUTPUT	RINGER	BUZZER	DTMF	ICM/OGM	X0	HIGH	—	—	HIGH	X1		—	—	MIDDLE1	X2	—	—	—	MIDDLE2	X3		—	—	MIDDLE3	X4	LOW		—	—	X5	—	FIXED	FIXED	LOW	X6		—	—	—	X7	MIDDLE	—		—									
	OUTPUT	RINGER	BUZZER	DTMF	ICM/OGM																																																		
	X0	HIGH	—	—	HIGH																																																		
	X1		—	—	MIDDLE1																																																		
	X2	—	—	—	MIDDLE2																																																		
	X3		—	—	MIDDLE3																																																		
	X4	LOW		—	—																																																		
	X5	—	FIXED	FIXED	LOW																																																		
X6		—	—	—																																																			
X7	MIDDLE	—		—																																																			
TXCONT (The circuit is located in the control PWB.)	<u>Handset transfer mute control signal</u> H: Signal sending, when transmitting L: During reception, transmission mute, (during standby)																																																						
GAIN-C (The circuit is located in the control PWB.)	<u>Reception gain switching signal</u> L: When connected to line, 1: 1 gain H: When not connected to line, HIGH gain																																																						
BZCONT (The circuit is located in the control PWB.)	<u>Speaker output signal switching</u> H: Buzzer signal output (during stand by) L: When monitoring line signal																																																						

UX-470DE  
FO-880DE/NX-670DE

[Signals for status recognition according to input signals]

Signal Name	Function
$\overline{\text{RHS}}$	H: The handset is in the on-hook state. L: The handset is in the off-hook state.
CI	Incoming call (CI) detection signal
P-E	H: Recording paper does not exist. L: Recording paper is set (exists). (Detection of recording paper in printing state)
P-IN	H: Recording paper does not exist in case of printing. L: Recording paper exists in case of printing. (Detection of recording paper in printing state)

[Other signals]

Signal Name	Function
TEL IN	Receiving signal from line or modem
TEL OUT	Transfer signal to line
TXOUT	Transmission (DTMF) analog signal output from modem
RXIN	Reception (DTMF, others) analog signal input into modem

NO	Signal Name (CNLIUA)	NO	Signal Name (CNLIUA)
1	TELOUT	8	RHS
2	TELIN	9	RXIN
3	TELMUTE	10	TXOUT
4	CI/CIDIN1	11	CML
5	CIDIN2/HS	12	+5V
6	P-E	13	DG
7	P-IN	14	+24VA

NO	Signal Name (CNLIUB)	NO	Signal Name (CNLIUB)
1	EXTSIG	4	DPON
2	RLYCNT	5	DPMUTE
3	SIGMUTE/TXMUTE	6	RCVOL

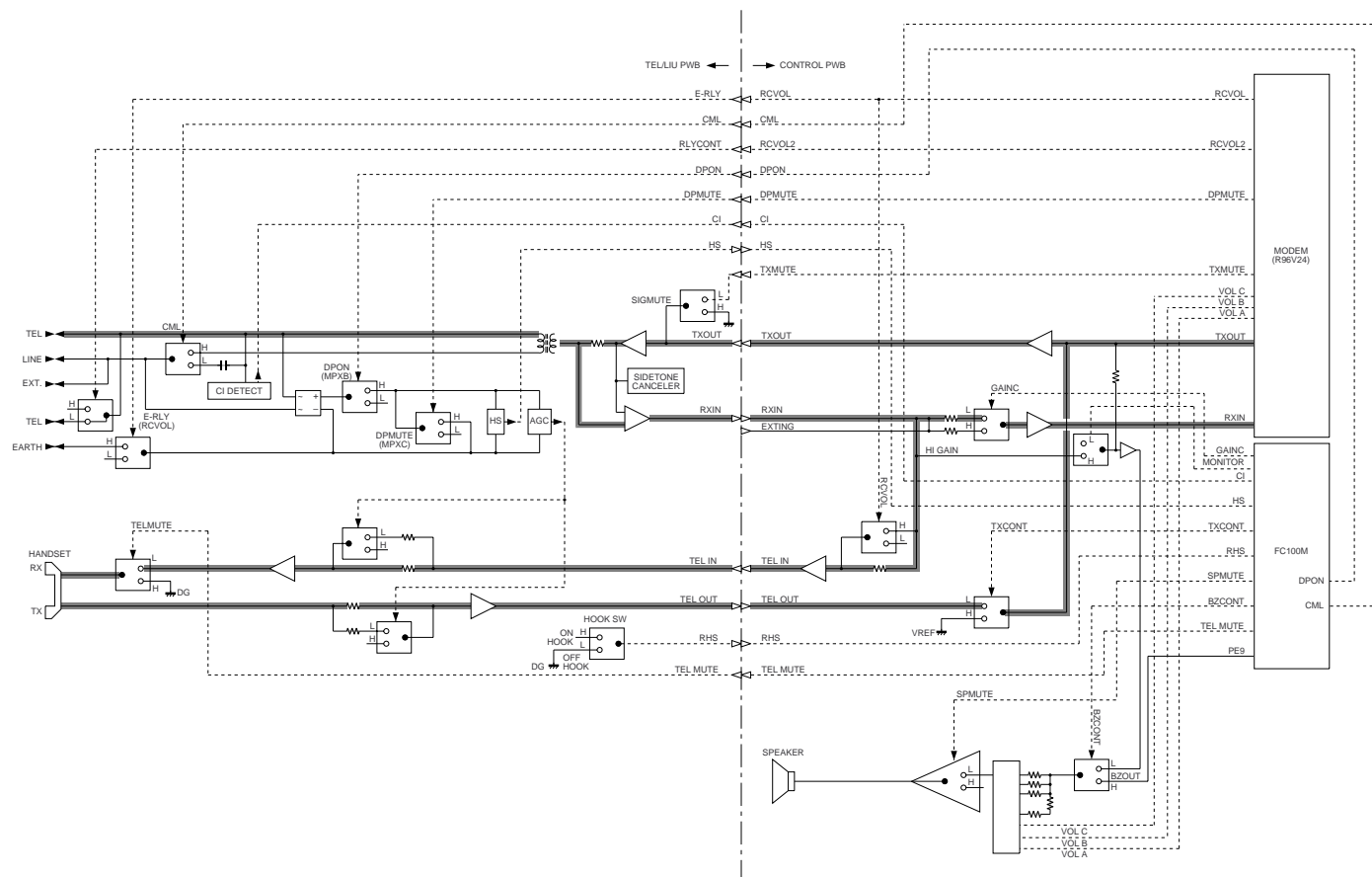


Fig. 6

## [4] Circuit description of power supply PWB

### 1. Block diagram

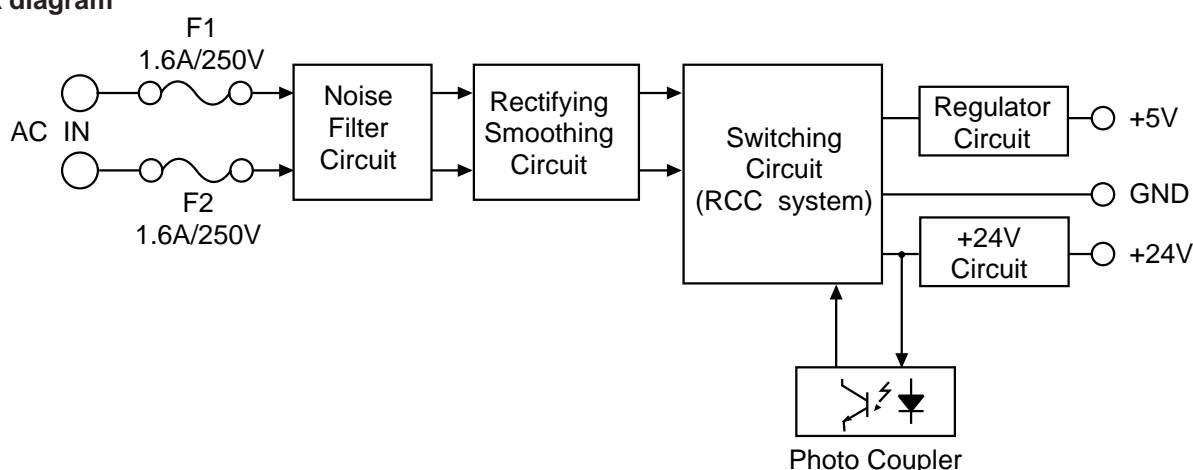


Fig. 7

#### 2-1. Noise filter circuit

The input noise filter section is composed of L1, C1 and C15 that reduces normal mode noise from the AC line and common mode noise to the AC line.

#### 2-2. Rectifying/smoothing circuit

The AC input voltage is rectified by diode D1, 2, 3, 4 and smoothed by capacitor C2 to supply DC voltage to switching circuit section.

Power thermistor TH1 suppresses inrush current at power switch-on.

#### 2-3. Switching circuit

This circuit employs the self excited ringing choke convertor (RCC) system. In this system, the DC voltage supplied from the rectifying/smoothing section is converted to be the high frequency pulses by ON/OFF repetition of MOS FET Q1.

Energy is charged in the primary winding of T1 during ON period of Q1, and discharged to the secondary winding during OFF period of Q1.

The output voltage is controlled by adjusting ON period of Q1 which changes charge time of C8 through operation of photo-coupler PC1 from +24V output.

The overcurrent protection is performed by bringing Q1 to OFF state through detection of voltage increase in the auxiliary winding of T1 by ZD2, R5 and R6.

The overvoltage protection is performed by operating the overcurrent protection circuit through destruction of zener diode ZD4 and short-circuiting of load.

#### 2-4. +5V circuit

Each DC voltage supplied by rectifying the output of transformer T1 with diode D8 is stabilized by 3-terminal regulator IC1.

## [5] Circuit description of CIS unit

### 1. CIS

Cis is an image sensor which puts the original paper in close contact with the full-size sensor for scanning, being a monochromatic type with the pixel number of 1,728 dots and the main scanning density of 8 dots/mm.

It is composed of sensor, rod lens, LED light source, light-conductive plate, control circuit and so on, and the reading line and focus are previously adjusted as the unit.

Due to the full-size sensor, the focus distance is so short that the set is changed from the light weight type to the compact type.

### 2. Waveforms

The following clock is supplied from FC100M of the control board, and VO is output.

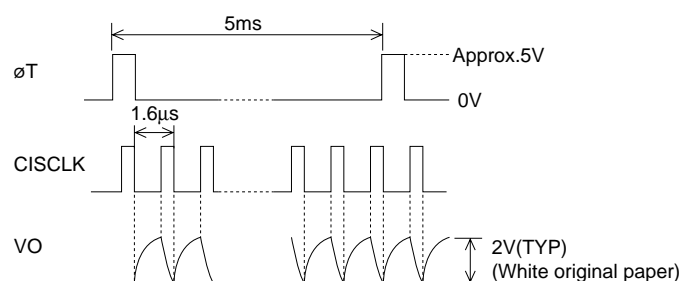
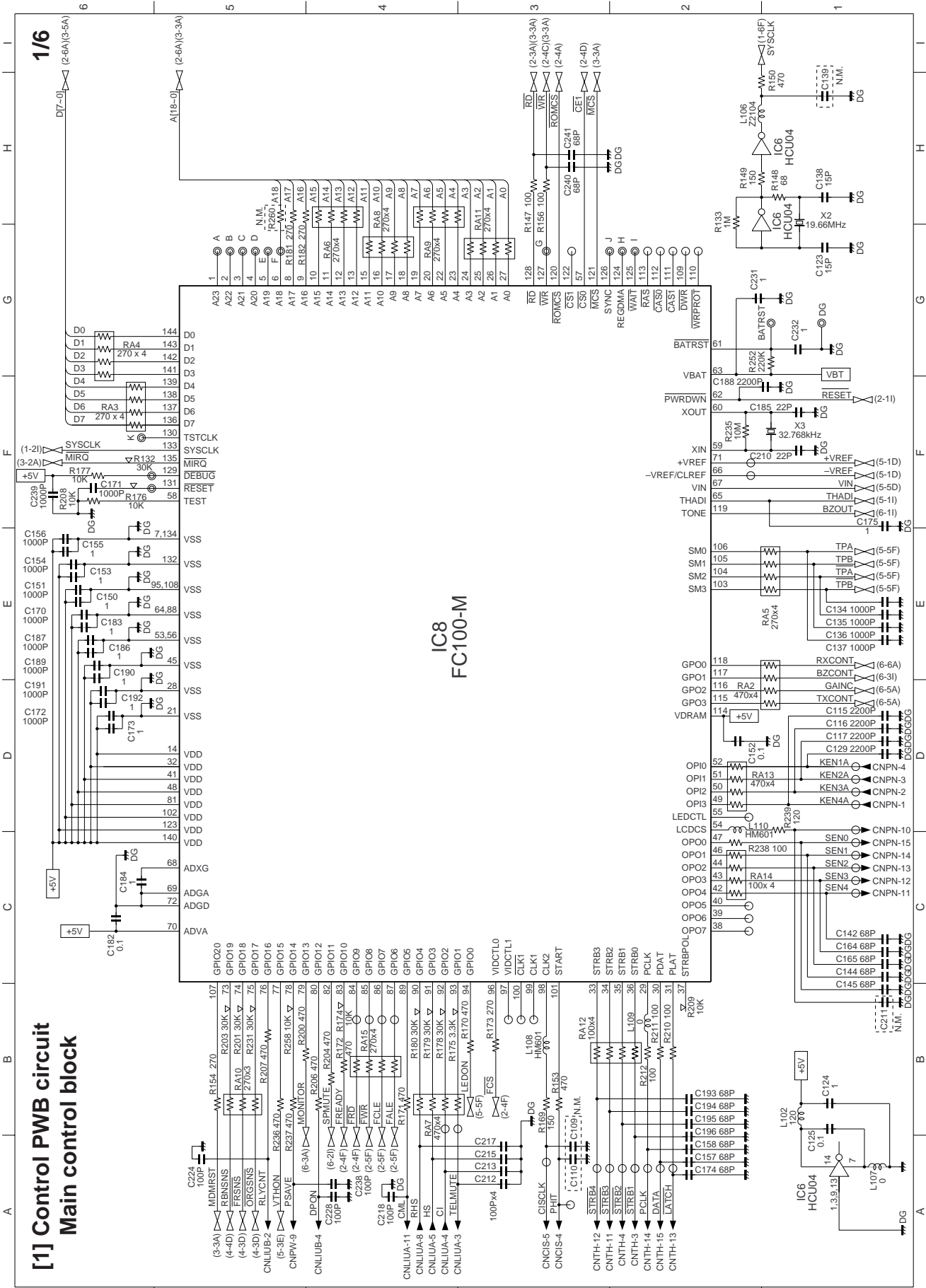


Fig. 8

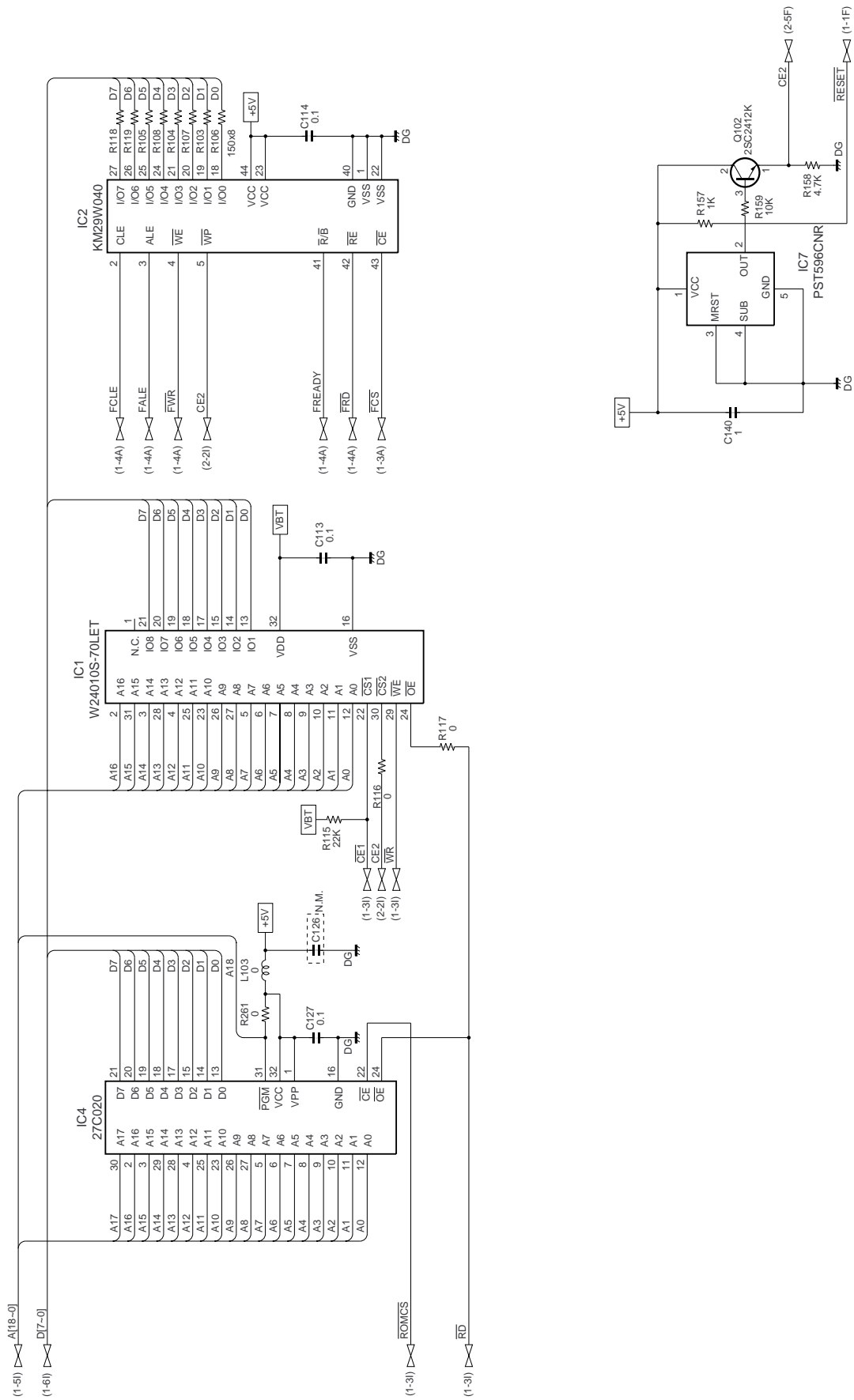
CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT





## Memory block

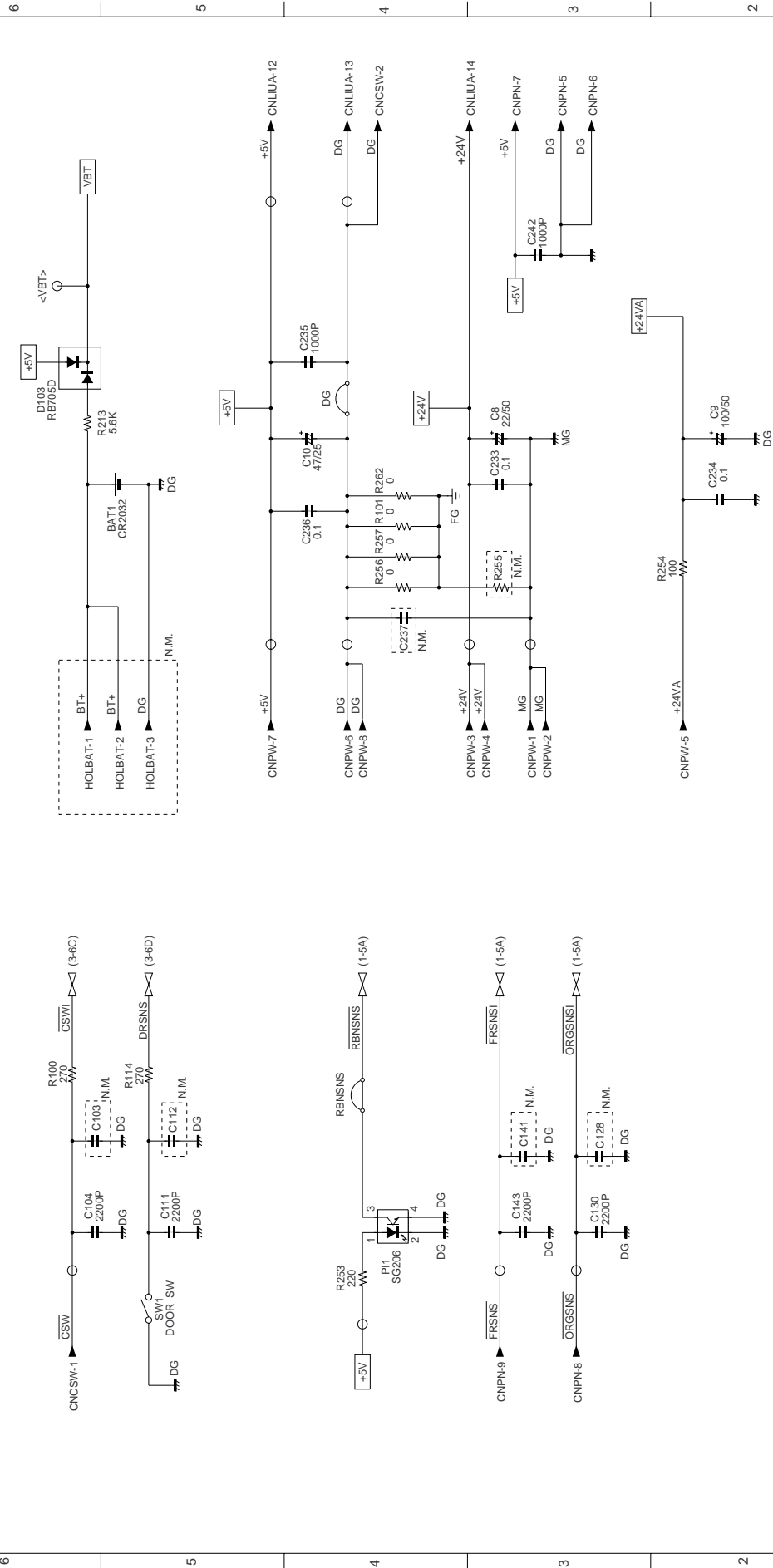
2/6





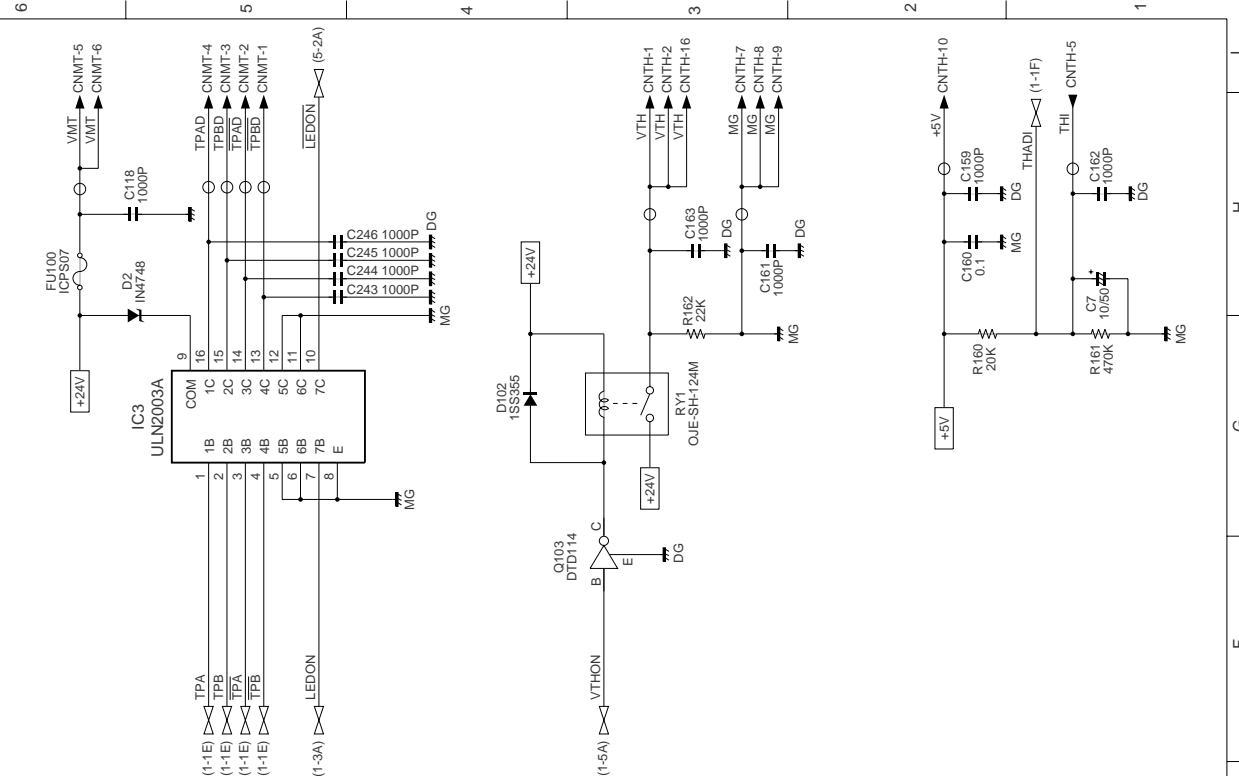
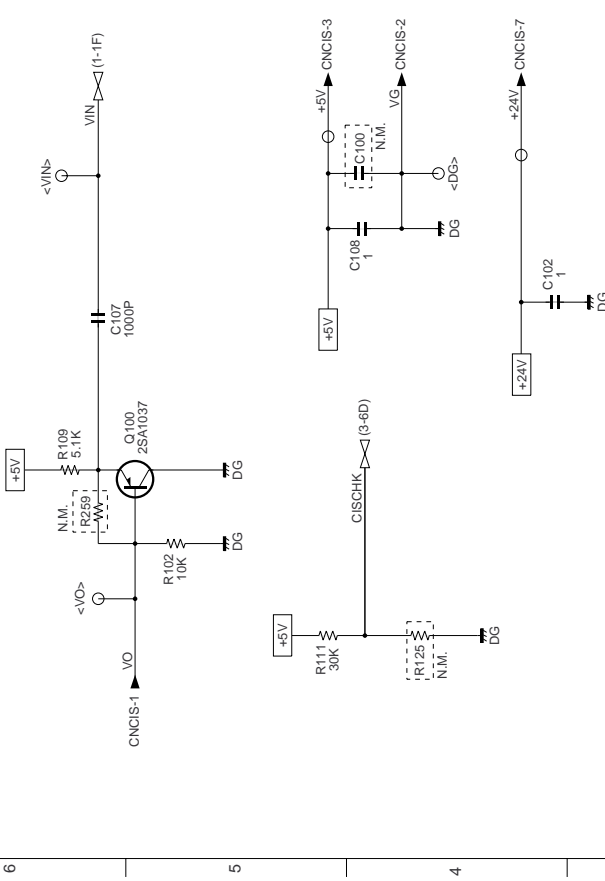
## Sensor/Reset/Power supply block

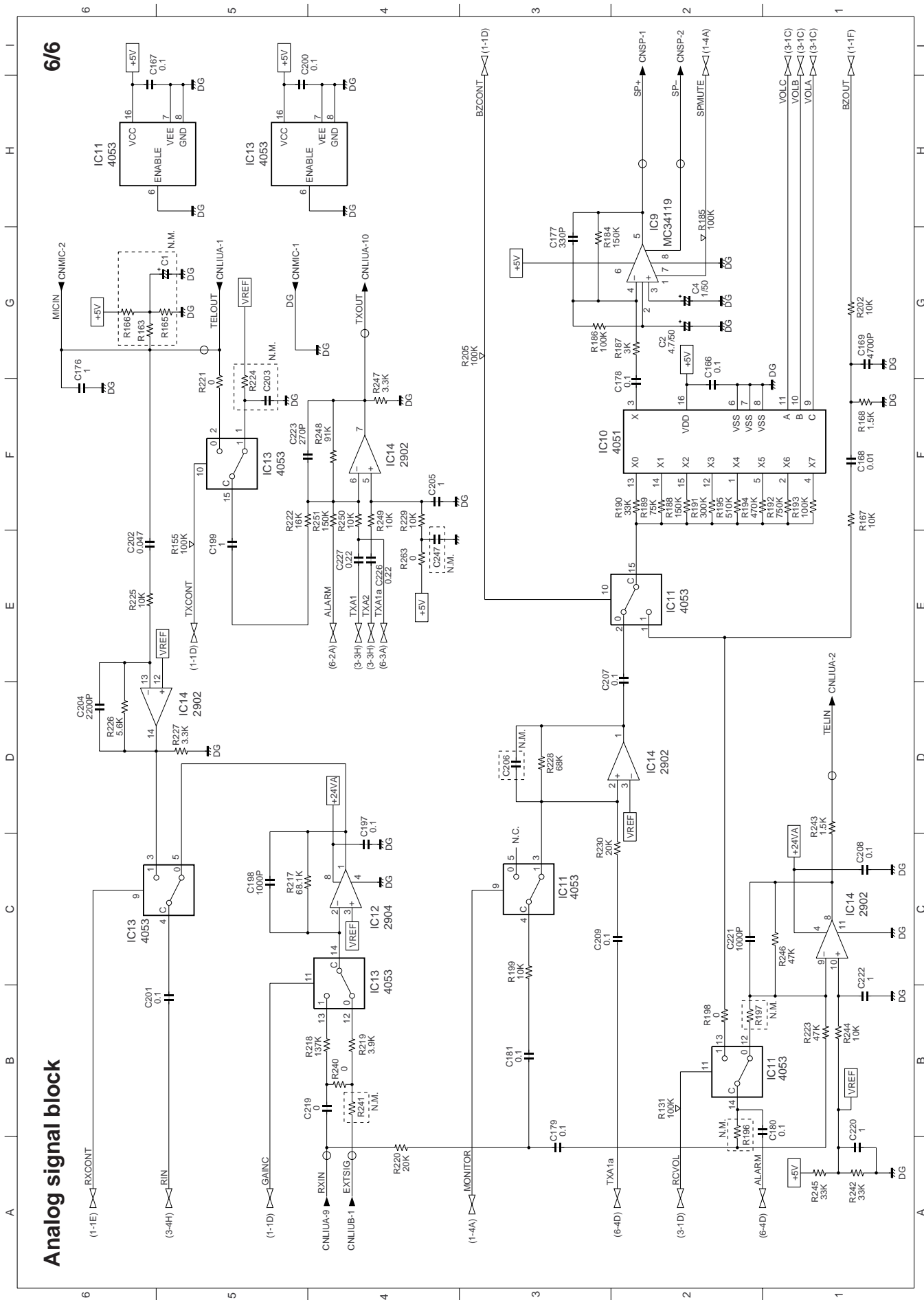
4/6



Video processing/Motor drive / Thermal block

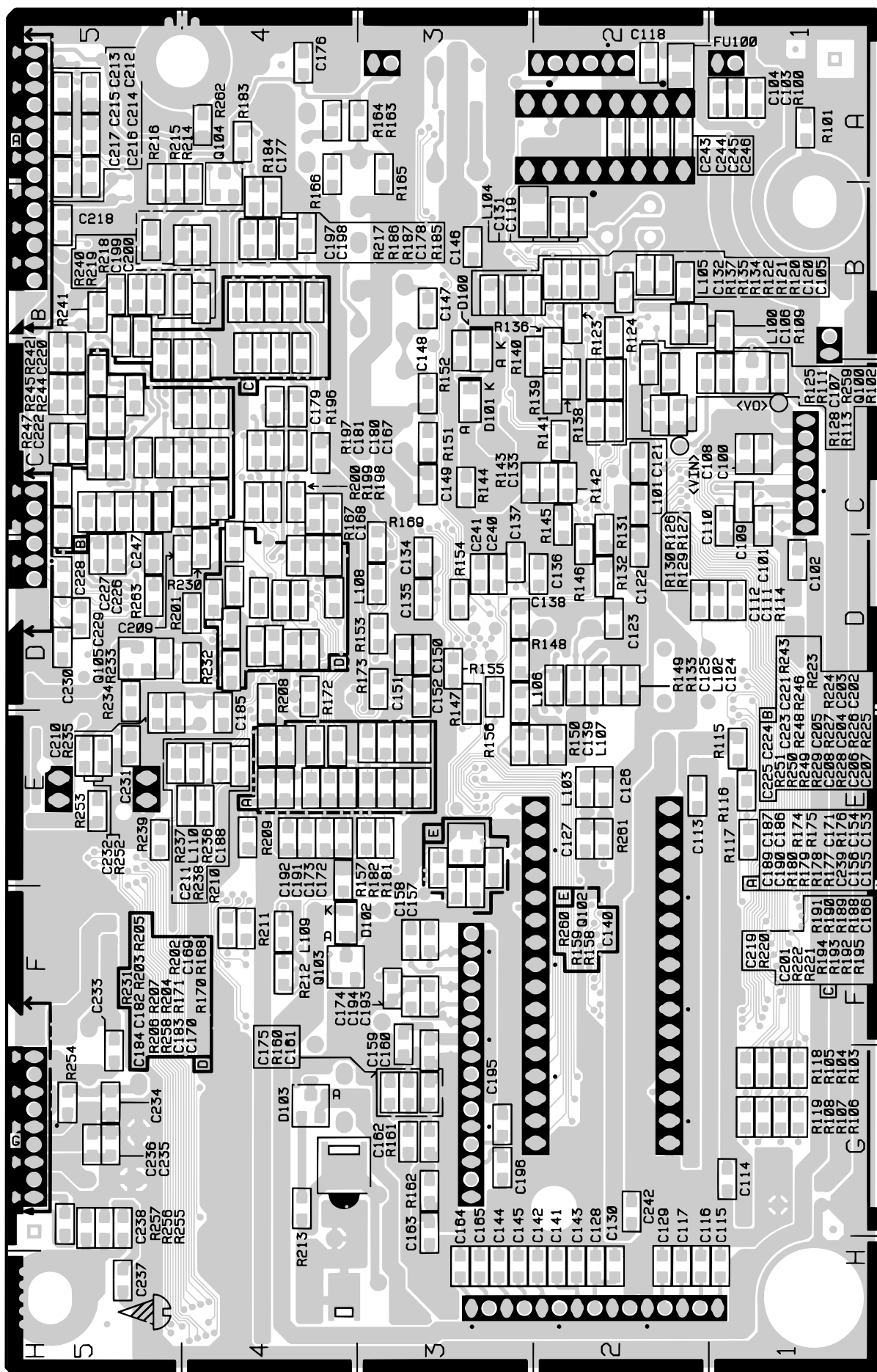
5/6







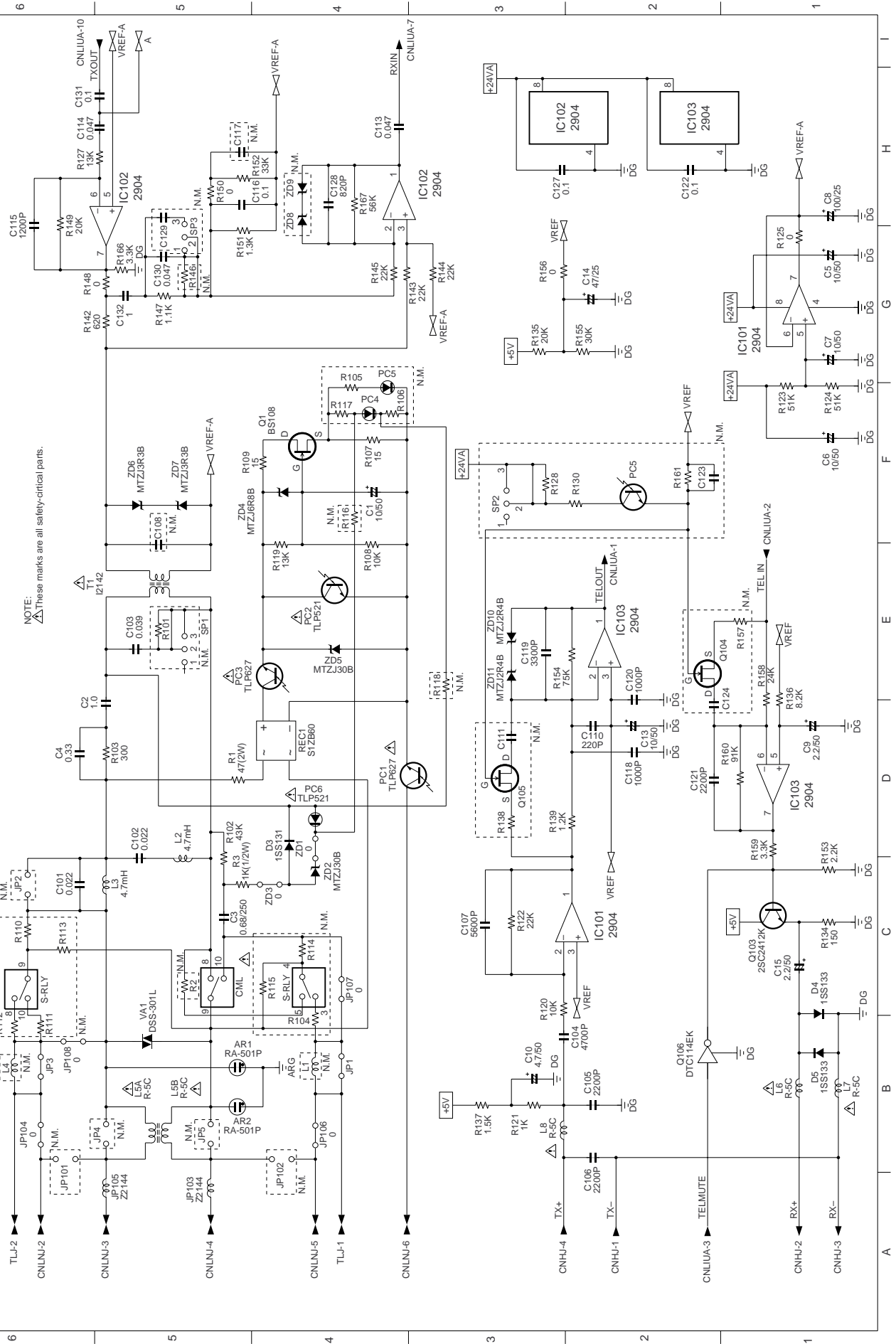
### Control PWB parts layout (Bottom side)



## [2] TEL/LIU PWB circuit

1/2

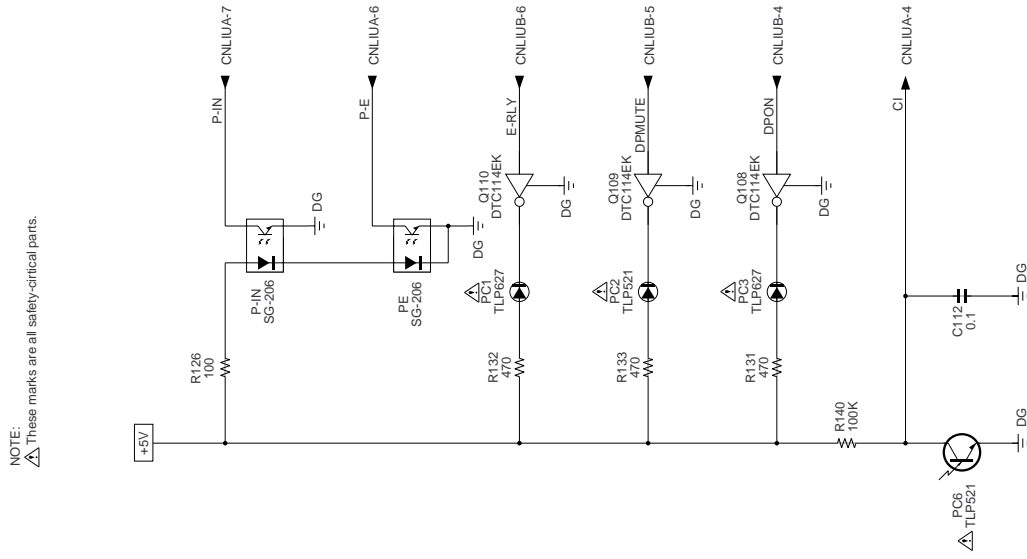
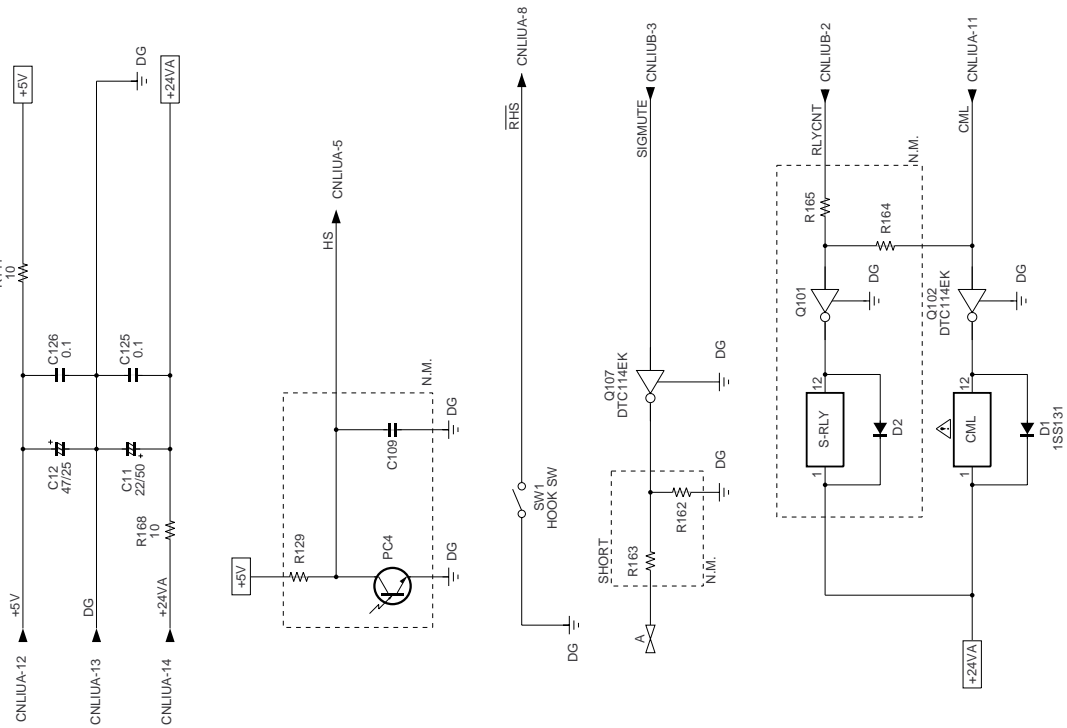
NOTE:  
These marks are all safety-critical parts.





## TEL/LIU PWB circuit

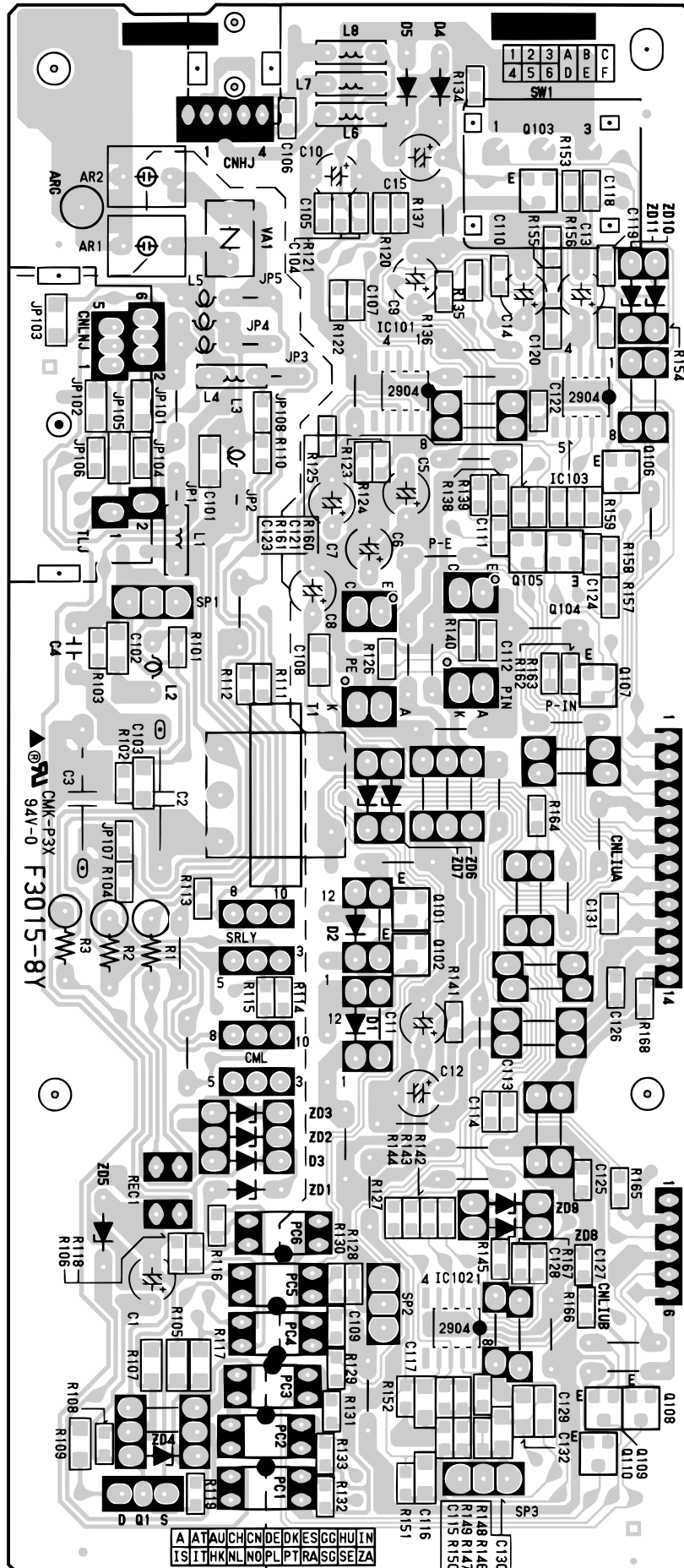
2/2



NOTE:  
△ These marks are all safety-critical parts.

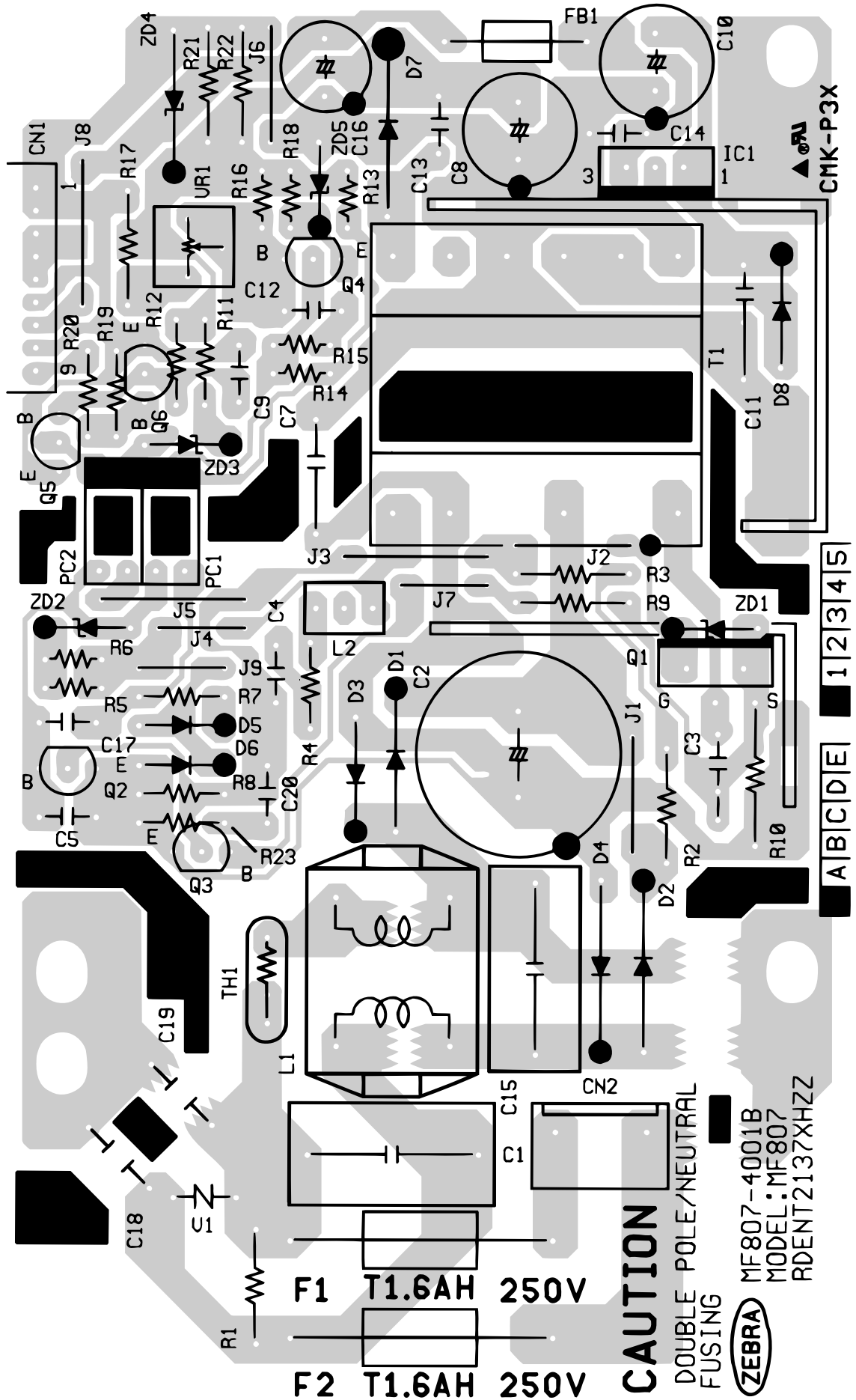


TEL/LIU PWB parts layout (Bottom side)

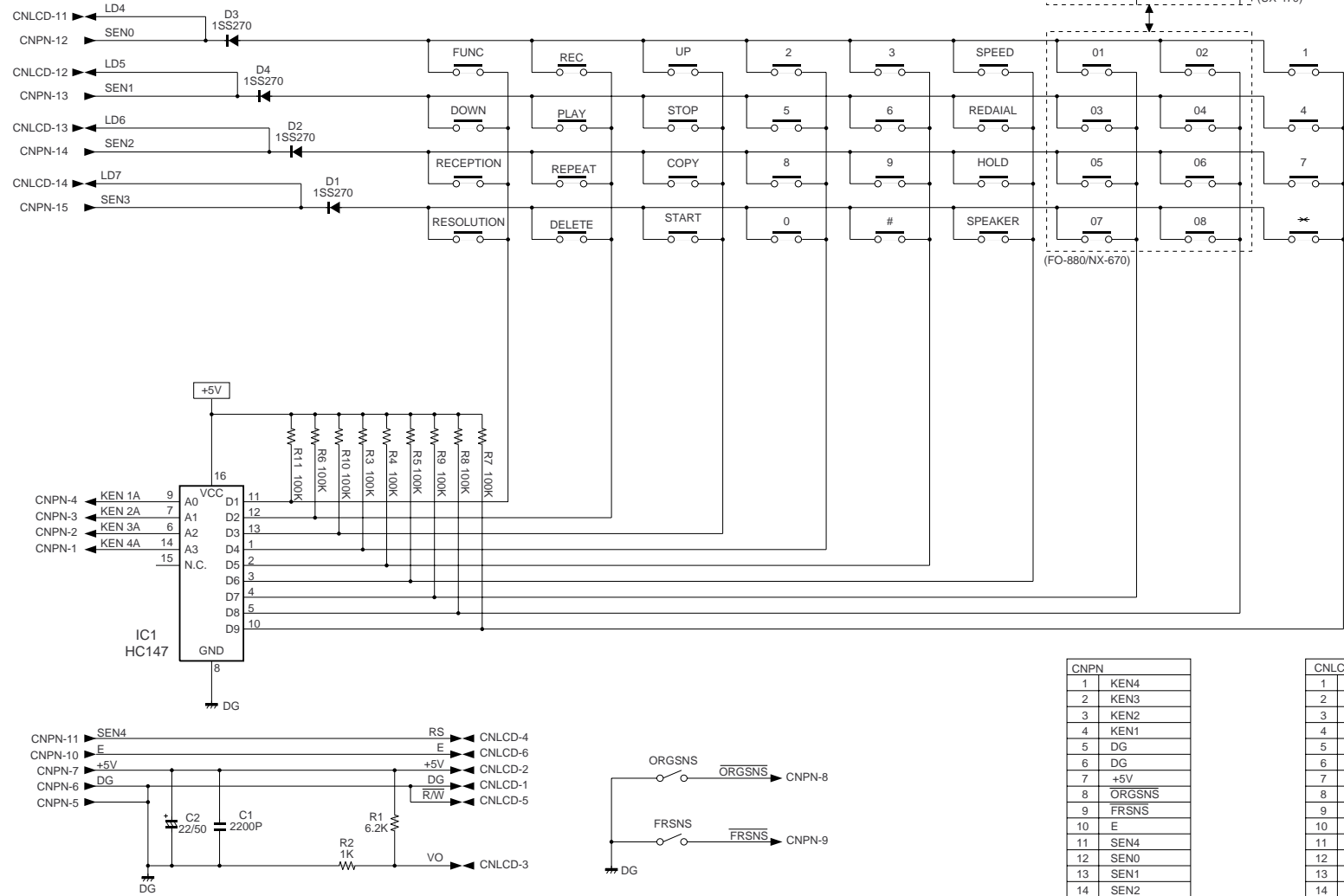




Power supply PWB parts layout



# [4] Operation panel PWB circuit



CNPN	
1	KEN4
2	KEN3
3	KEN2
4	KEN1
5	DG
6	DG
7	+5V
8	ORGSNS
9	FRSNS
10	E
11	SEN4
12	SEN0
13	SEN1
14	SEN2
15	SEN3

CNLCD	
1	GND
2	+5V
3	VO
4	RS
5	R/W
6	E
7	N.C.
8	N.C.
9	N.C.
10	N.C.
11	LD4
12	LD5
13	LD6
14	LD7

Note: Since the parts of PWB can not be supplied, change it as a unit.

# SHARP PARTS GUIDE

UX-470DE  
FO-880DE/NX-670DE

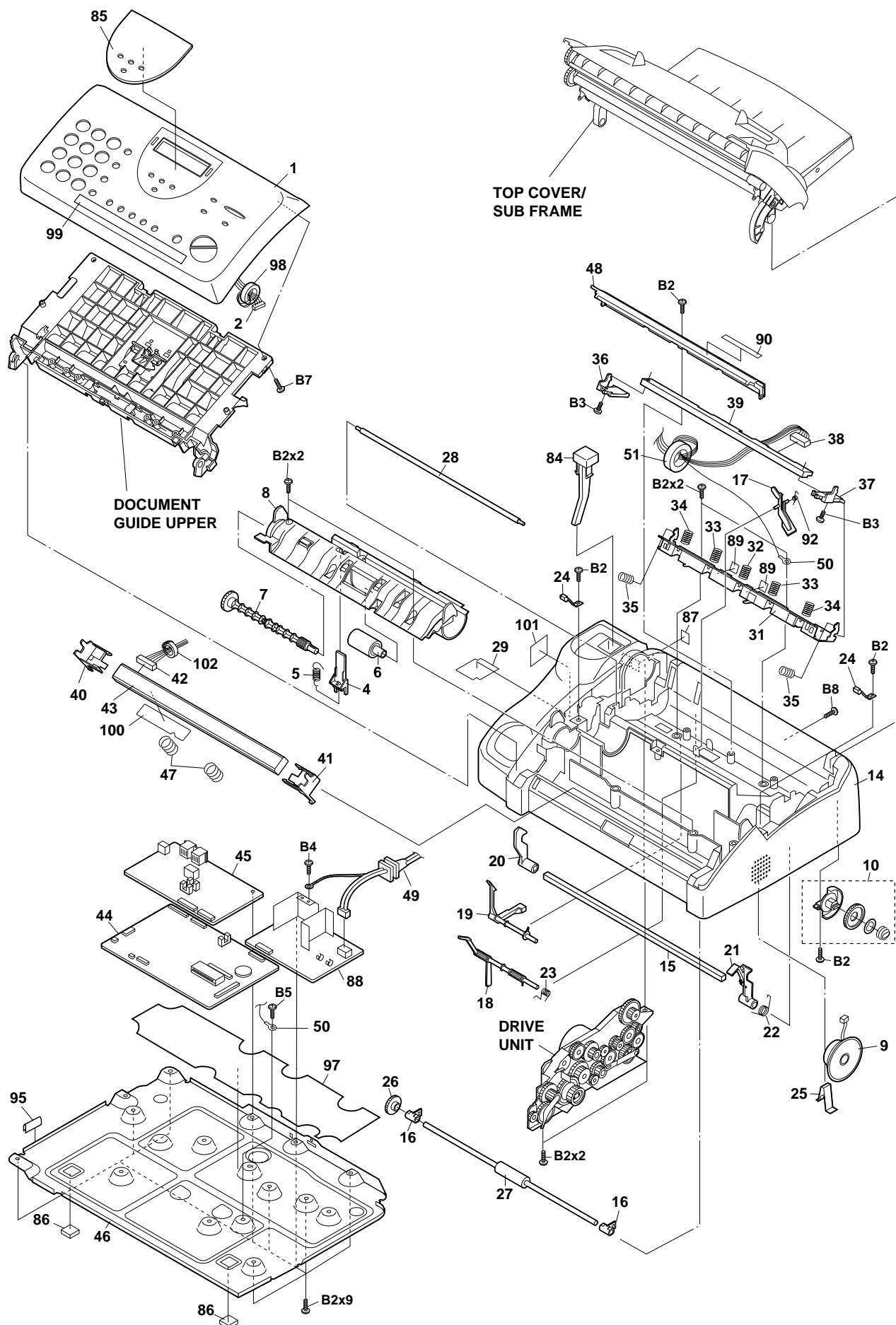
**UX-470**  
**FO-880**  
**MODEL NX-670**

## CONTENTS

- |                           |                                  |
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| 1 Cabinet, etc.           | 6 Packing material & Accessories |
| 2 Top cover and sub frame | 7 Control PWB unit               |
| 3 Upper cabinet           | 8 TEL-Liu PWB unit               |
| 4 Document guide upper    | 9 Power supply PWB unit          |
| 5 Drive unit              | ■ Index                          |

Because parts marked with "△" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

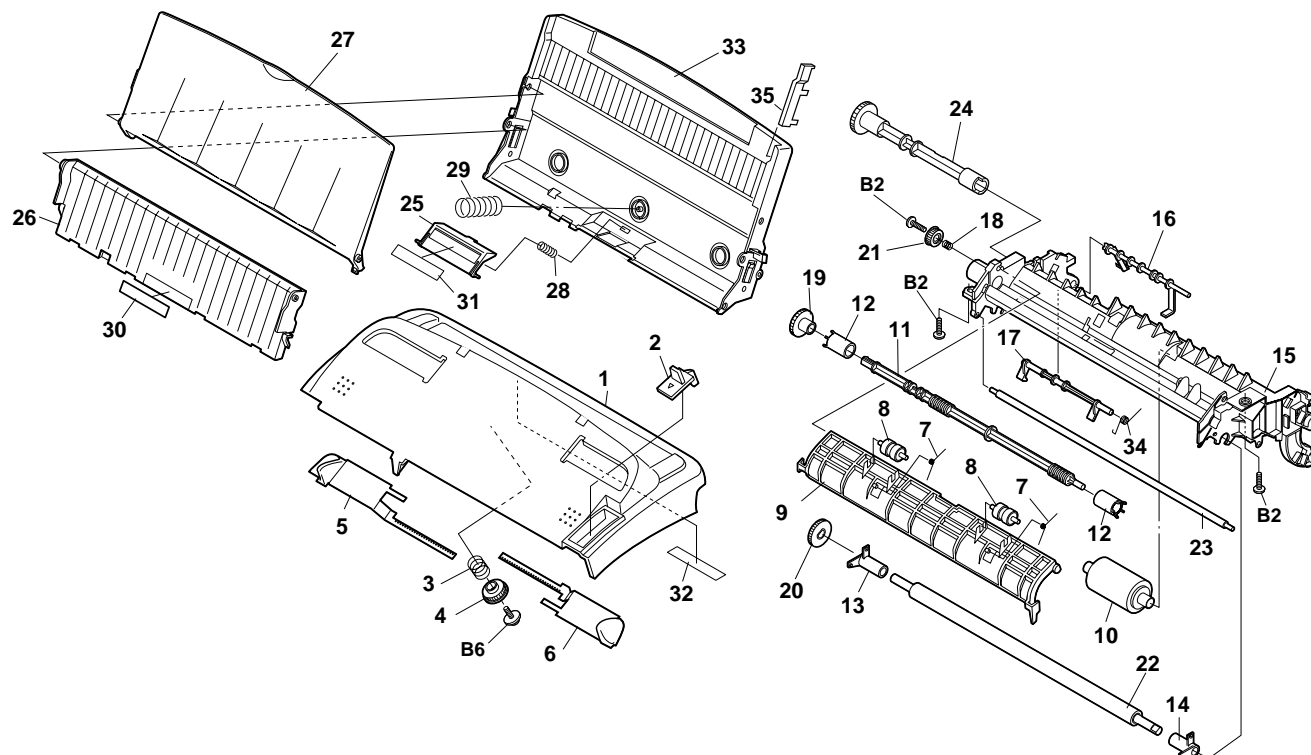
[1] Cabinet, etc.



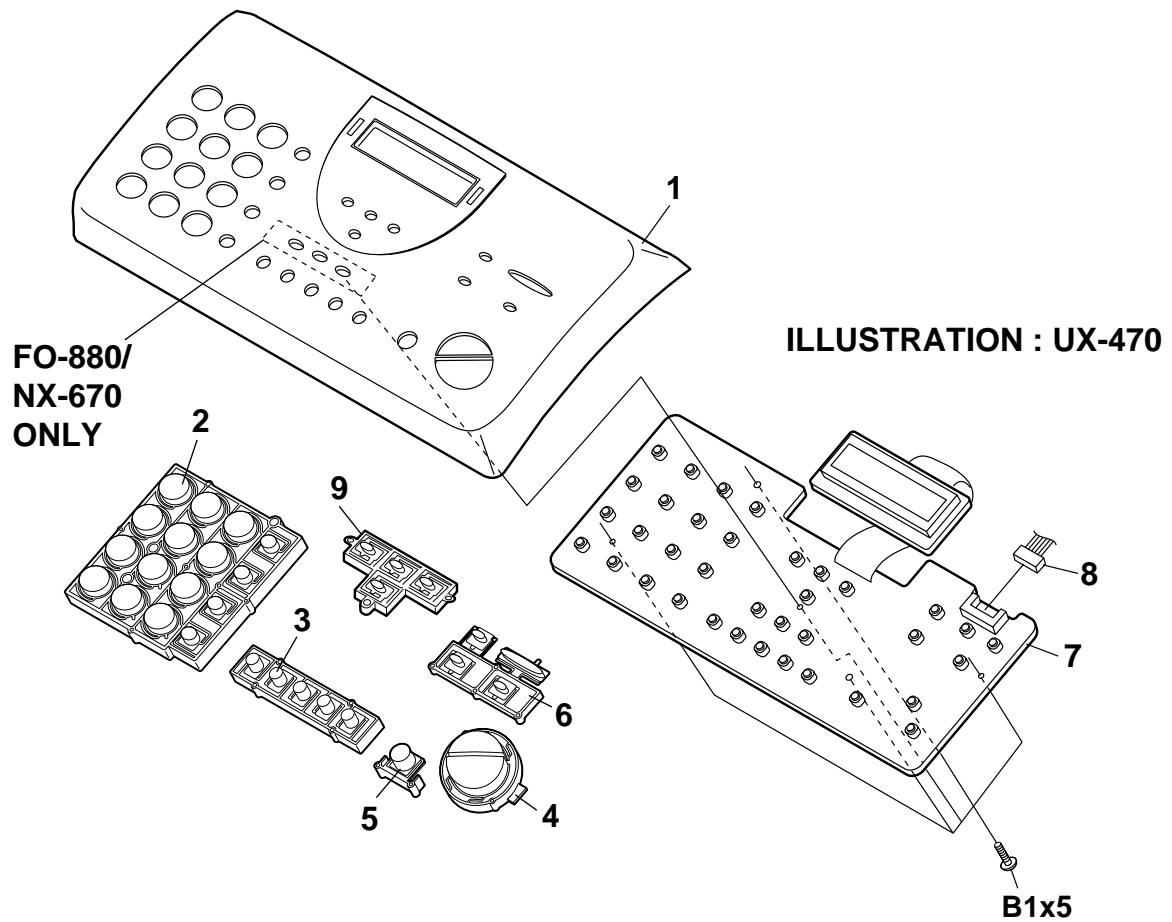


[illegible]

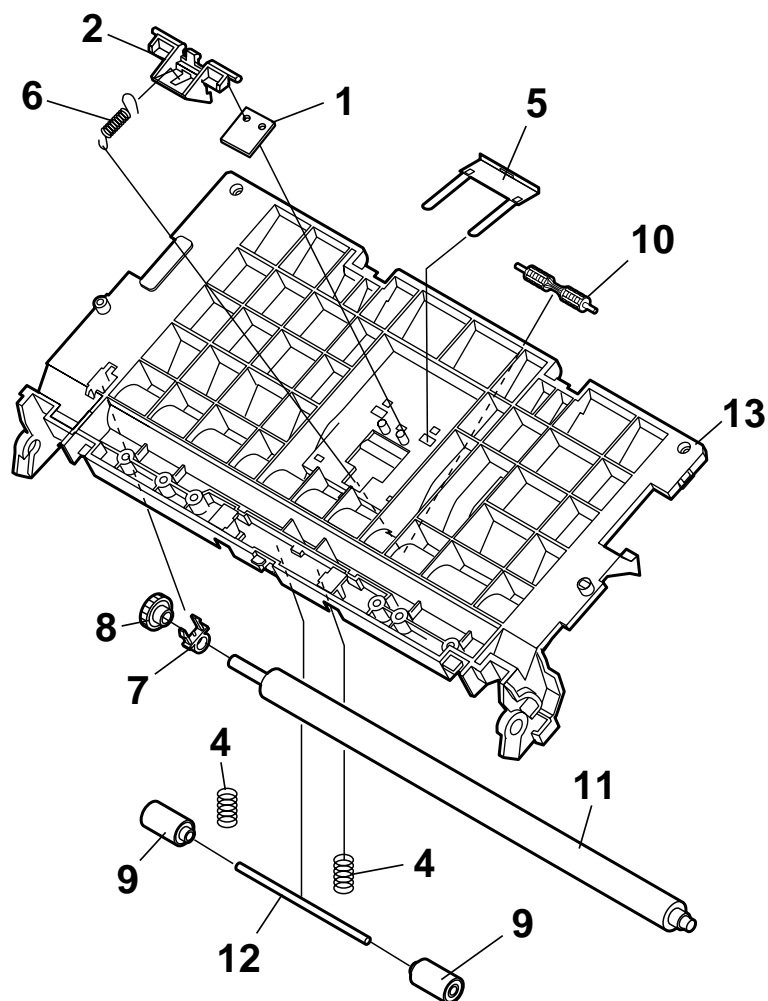
[2] Top cover and sub frame



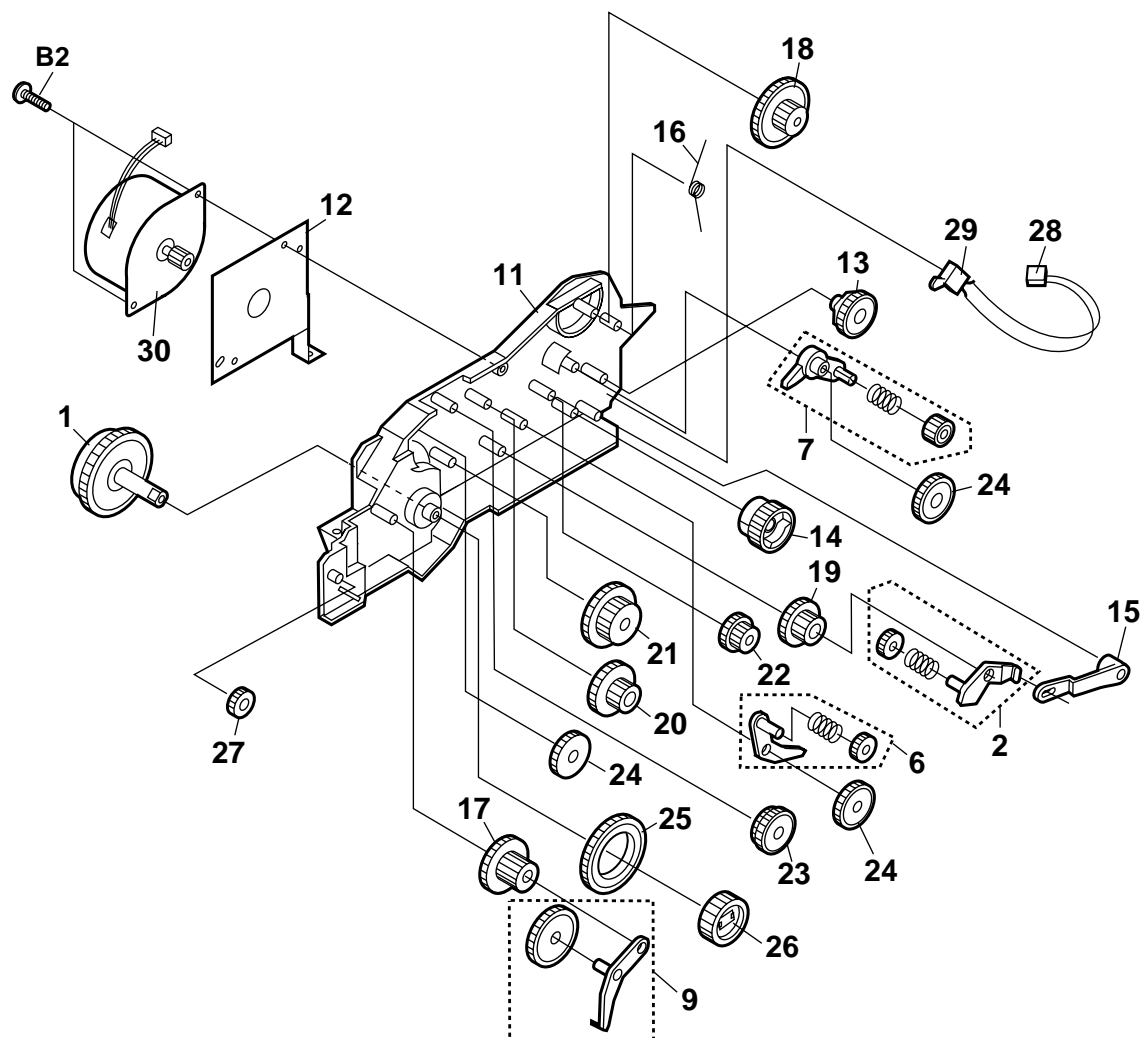
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[2] Top cover and sub frame					
1	GCOVA2403XHSC	AN		C	Top cover [470/670]
	GCOVA2403XHSA	AL		C	Top cover [880]
2	JKNBP2091XHZZ	AC		C	Release knob
3	MSPRC2832XHZZ	AC		C	Hopper spring
4	NGERP2318XHZZ	AD		C	Pinion gear
5	PGIDM2533XHSC	AD		C	Hopper guide,left [470/670]
	PGIDM2533XHSA	AD		C	Hopper guide,left [880]
6	PGIDM2534XHSC	AD		C	Hopper guide,right [470/670]
	PGIDM2534XHSA	AD		C	Hopper guide,right [880]
7	MSPRD3065XHfJ	AB		C	PO pinch roller spring
8	NROLR2332XHZZ	AD		C	PO pinch roller
9	PGIDM2537XHZZ	AF		C	PO guide
10	CROLR2407XH01	AN		C	PU roller ass'y
11	NROLR2408XHZZ	AD		C	PO roller
12	PGUMR2160XHZZ	AE		C	PO roller rubber
13	LBSHP2104XHZZ	AC		C	Platen bearing,left
14	LBSHP2105XHZZ	AC		C	Platen bearing,right
15	LFRM-2199XHZZ	AK		C	Sub frame
16	MLEVP2291XHZZ	AD		C	PE sensor lever
17	MLEVP2293XHZZ	AD		C	P-IN sensor lever
18	MSPRC3064XHfJ	AC		C	Tension spring
19	NGERH2441XHZZ	AC		C	PO gear
20	NGERH2442XHZZ	AC		C	Platen gear
21	NGERH2460XHZZ	AC		C	Tension gear
22	NROLR2409XHZZ	AW		C	Platen roller
23	NSFTM2311XHZZ	AG		C	Film guide shaft
24	NSFTP2304XHZZ	AD		C	PU shaft
25	LPLTP2997XHZZ	AD		C	Separate plate
26	LPLTP2998XHZZ	AF		C	Rotation plate
27	LPLTP3001XHSC	AF		C	RP release plate [470/670]
	LPLTP3001XHSA	AH		C	RP release plate [880]
28	MSPRC3062XHfJ	AB		C	Separate spring
29	MSPRC3063XHfJ	AC		C	C-spring
30	PSEL-2015SCZZ	AB		C	RP pad
31	PSHEZ3293XHZZ	AH		C	Separate plate sheet
32	PSHEZ3431XHZZ	AC		C	TC sheet
33	PHOP-2101XHSC	AH		C	RP hopper [470/670]
	PHOP-2101XHSA	AK		C	RP hopper [880]
34	MSPRD3105XHfJ	AC		C	P-IN sensor lever spring
35	PGIDM2535XHSC	AC		C	A4 paper guide [470/670]
	PGIDM2535XHSA	AC		C	A4 paper guide [880]
B2	XEBSD30P10000	AA		C	Screw(3x10)
B6	LX-BZ2138XHZZ	AB		C	Screw

[illegible]

[4] Document guide upper

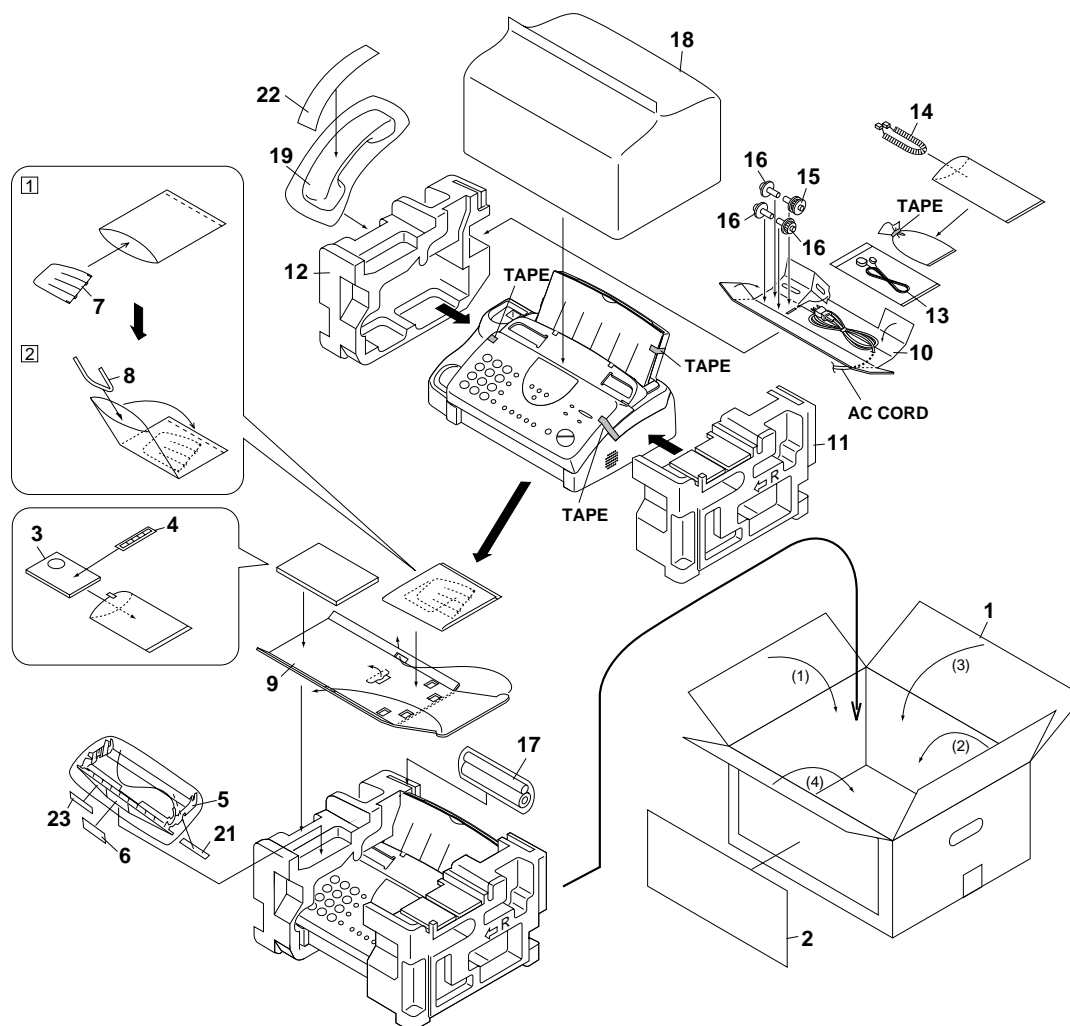
[illegible]

[5] Drive unit



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[5] Drive unit					
1	CGERH2459XH01	AM		C	Slip gear ass'y
2	CLEVP2298XH01	AC		C	Planet gear lever A ass'y
6	CLEVP2299XH01	AC		C	Planet gear lever B ass'y
7	CLEVP2300XH01	AC		C	Planet gear lever C ass'y
9	CLEVP2303XH01	AC		C	Planet gear lever D ass'y
11	LFRM-2200XHZZ	AB		C	Drive frame
12	LPLTM2994XHFW	AE		C	Motor plate
13	MCAMP2025XHZZ	AB		C	Cam A
14	MCAMP2026XHZZ	AB		C	Cam B
15	MLEVP2301XHZZ	AB		C	Link lever
16	MSPRD3070XHfJ	AB		C	Cam hold spring
17	NGERH2280XHZZ	AC		C	Idler gear B
18	NGERH2311XHZZ	AD		C	Reduction gear C
19	NGERH2446XHZZ	AB		C	Reduction gear,1
20	NGERH2447XHZZ	AB		C	Reduction gear,2
21	NGERH2448XHZZ	AB		C	Reduction gear,3
22	NGERH2449XHZZ	AB		C	Reduction gear,4
23	NGERH2450XHZZ	AB		C	Reduction gear,5
24	NGERH2451XHZZ	AB		C	Idler gear,30Z
25	NGERH2452XHZZ	AB		C	Idler gear,52Z
26	NGERH2454XHZZ	AB		C	Take up gear
27	NGERH2461XHZZ	AB		C	Reduction gear,6
28	QCNW-4933XHZZ	AC		C	Cam switch cable
29	QSW-F2224SCZZ	AE		B	Cam switch
30	RMOTZ2145XHZZ	BA		B	Motor
B2	XEBSD30P10000	AA		C	Screw(3x10)

[6] Packing material & Accessories



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[6] Packing material & Accessories					
1	SPAKC046BFFZZ		N	D	Packing case [470]
	SPAKC048BFFZZ		N	D	Packing case [880]
	SPAKC050BFFZZ		N	D	Packing case [670]
2	TLABM4915FFZZ		N	D	Box label [470]
	TLABM4918FFZZ		N	D	Box label [880]
	TLABM4921FFZZ		N	D	Box label [670]
3	TINSG3963FFZZ		N	D	Operation manual [470]
	TINSG3964FFZZ		N	D	Operation manual [880]
	TINSG3965FFZZ		N	D	Operation manual [670]
4	TLABH4834FFZZ			D	Rapid key labels [470]
	TLABH4880FFZZ			D	Rapid key labels [880/670]
5	CPLTP3002XHB2	AK		E	Imaging film cartridge and label ass'y
6	TLABH4752XHZZ	AB		D	Film set label
7	LPLTP3003XHSA	AH		C	Paper tray extension
8	PHOP-2102XHZZ	AE		C	Original document support
9	SPAKA490AFFZZ			D	Pad B
10	SPAKA489AFFZZ			D	Pad A
11	SPAKA481AFFZZ			D	Packing add.,right
12	SPAKA480AFFZZ			D	Packing add.,left
13	QCNW-4649FFZZ			C	Telephone line cord
14	QCNW-3976XHBG	AK		C	Handset cord [470/670]
	QCNW-3976XHOW	AK		C	Handset cord [880]
15	NGERH2455XHZZ	AD		C	Imaging film gear A
16	NGERH2456XHZZ	AC		C	Imaging film gear B
17	PRBNN2015SCZZ	AQ		S	Imaging film(Initial starter roll 10m)
18	SPAKP3385FFZZ			D	Vinyl cover
19	DUNTK419BFFBG			E	Handset [470/670]
	DUNTK419BFFWH			E	Handset [880]
21	TLABH4835XHZZ			D	Caution label A
22	TLABM4923FFZZ		N	D	Pop label [470]
	TLABM4920FFZZ		N	D	Pop label [880/670]
23	TLABH4899XHZZ			D	Caution label B



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[7] Control PWB unit					
1	UBATL2049SCZZ	AF		B	Battery(CR2032T23) [BAT1]
2	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7μF) [C2]
3	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C3]
4	VCEAGA1HW105M	AB		C	Capacitor(50WV 1μF) [C4]
5	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C5]
6	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF) [C6]
7	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C7]
8	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF) [C8]
9	VCEAGA1HW107M	AA		C	Capacitor(50WV 100μF) [C9]
10	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF) [C10]
11	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C101]
12	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C102]
13	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C104]
14	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C105]
15	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C106]
16	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C107]
17	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C108]
18	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C111]
19	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C113]
20	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C114]
21	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C115]
22	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C116]
23	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C117]
24	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C118]
25	VCCCTV1HH5R0C	AA		C	Capacitor(50WV 5PF) [C119]
26	VCCCTV1HH5R0C	AA		C	Capacitor(50WV 5PF) [C120]
27	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C121]
28	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C122]
29	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF) [C123]
30	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C124]
31	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C125]
32	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C127]
33	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C129]
34	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C130]
35	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C131]
36	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C132]
37	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01μF) [C133]
38	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C134]
39	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C135]
40	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C136]
41	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C137]
42	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF) [C138]
43	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C140]
44	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C142]
45	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C143]
46	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C144]
47	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C145]
48	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C146]
49	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C147]
50	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C148]
51	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C149]
52	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C150]
53	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C151]
54	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C152]
55	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C153]
56	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C154]
57	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C155]
58	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C156]
59	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C157]
60	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C158]
61	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C159]
62	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C160]
63	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C161]
64	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C162]
65	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C163]
66	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C164]
67	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C165]
68	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C166]
69	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C167]
70	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01μF) [C168]
71	VCKYTV1HB472K	AA		C	Capacitor(50WV 4700PF) [C169]
72	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C170]
73	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C171]
74	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C172]
75	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C173]
76	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C174]
77	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C175]
78	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C176]
79	VCKYTV1HB331K	AA		C	Capacitor(50WV 330PF) [C177]
80	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C178]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[7] Control PWB unit					
81	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C179]
82	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C180]
83	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C181]
84	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C182]
85	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C183]
86	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C184]
87	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF) [C185]
88	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C186]
89	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C187]
90	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C188]
91	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C189]
92	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C190]
93	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C191]
94	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C192]
95	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C193]
96	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C194]
97	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C195]
98	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C196]
99	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C197]
100	VCCSTV1HL102J	AA		C	Capacitor(50WV 1000PF) [C198]
101	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C199]
102	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C200]
103	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C201]
104	VCKYTV1HB473K	AA		C	Capacitor(50WV 0.047μF) [C202]
105	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C204]
106	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C205]
107	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C207]
108	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C208]
109	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C209]
110	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF) [C210]
111	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C212]
112	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C213]
113	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C214]
114	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C215]
115	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C216]
116	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C217]
117	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C218]
118	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [C219]
119	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C220]
120	VCCSTV1HL102J	AA		C	Capacitor(50WV 1000PF) [C221]
121	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C222]
122	VCCCTV1HH271J	AA		C	Capacitor(50WV 270PF) [C223]
123	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C224]
124	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C225]
125	VCKYTV1CB224K	AC		C	Capacitor(16WV 0.22μF) [C226]
126	VCKYTV1CB224K	AC		C	Capacitor(16WV 0.22μF) [C227]
127	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C228]
128	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C229]
129	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C230]
130	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C231]
131	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF) [C232]
132	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C233]
133	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C234]
134	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C235]
135	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C236]
136	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF) [C238]
137	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C239]
138	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C240]
139	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF) [C241]
140	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C242]
141	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C243]
142	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C244]
143	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C245]
144	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C246]
145	QCNCM7014SC0G	AB		C	Connector(7pin) [CNCIS]
146	QCNCM2442SC0B	AB		C	Connector(2pin) [CNCSW]
147	QCNCM2575SC1D	AC		C	Connector(14pin) [CNLIUA]
148	QCNCM2575SC0F	AE		C	Connector(6pin) [CNLIUB]
149	QCNCM7014SC0F	AB		C	Connector(6pin) [CNMT]
150	QCNCM7014SC1E	AC		C	Connector(15pin) [CNPNI]
151	QCNCM2575SC0I	AF		C	Connector(9pin) [CNPW]
152	QCNCM2401SC0B	AA		C	Connector(2pin) [CNSP]
153	QCNCM7014SC1F	AD		C	Connector(16pin) [CNTH]
154	VHEMPZP4748A1	AA		B	Zener diode(MPZP4748) [D2]
155	VHD1SS355/-1	AB		B	Diode(1SS355) [D100]
156	VHD1SS355/-1	AB		B	Diode(1SS355) [D101]
157	VHD1SS355/-1	AB		B	Diode(1SS355) [D102]
158	VHDB705D/-1	AD		B	Diode(RB705D) [D103]
159	VHVICPS07/-1	AA		B	Varistor(ICP-S07) [FU100]
160	VHIW24010S7LE	AZ		B	IC(W24010S-70LE) [IC1]



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[7] Control PWB unit					
161	VHIKM29W040-1	AV		B	IC(KM29W040T) [IC2]
162	VHIULN2003ANS	AE		B	IC(ULN2003ANS) [IC3]
163	QSOCZ0115SC32	AC	N	C	IC socket(32pin) [IC4]
	VHI27020FKW0B		N	B	IC,EPROM(2MB) [IC4][470]
	VHI27020FKX0G		N	B	IC,EPROM(2MB) [IC4][880/670]
166	VHIR96V24FC1M	BS	N	B	IC(R96V24)(Within IC5 and IC8 pair) [IC5]
167	VHITC74HCU04F	AE		B	IC(TC74HCU04) [IC6]
168	VHIPST596CMT1	AF		B	IC(PST596CNR) [IC7]
169	VHIR96V24FC1M	BS	N	B	IC(FC100M)(Within IC5 and IC8 pair) [IC8]
170	VHIMC34119DR2	AH		B	IC(MC34119DR2) [IC9]
171	VHIHCF4051M1T	AG		B	IC(HCF4051) [IC10]
172	VHIHCF4053M1T	AG		B	IC(HCF4053) [IC11]
173	VHINJM2904M-1	AE		B	IC(NJM2904) [IC12]
174	VHIHCF4053M1T	AG		B	IC(HCF4053) [IC13]
175	VHINJM2902M-1	AF		B	IC(NJM2902M) [IC14]
176	RCILZ2145XHZZ	AF		C	Coil(Z2145) [L100]
177	RCILZ2145XHZZ	AF		C	Coil(Z2145) [L101]
178	VRS-TS2AD121J	AA		C	Resistor(1/10W 120Ω ±5%) [L102]
179	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [L103]
180	VP-1M3R3J0000	AG		C	Coil(3.3μH) [L104]
181	RCILZ2145XHZZ	AF		C	Coil(Z2145) [L105]
182	RCILZ2104SCZZ	AK		C	Coil(Z2104) [L106]
183	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [L107]
184	RCILZ2145XHZZ	AF		C	Coil(Z2145) [L108]
185	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [L109]
186	RCILZ2145XHZZ	AF		C	Coil(Z2145) [L110]
187	VHPSG206S/-1	AG		B	Photo transistor(SG206S) [P11]
188	VS2SA1037KS-1	AB		B	Transistor(2SA1037KS) [Q100]
189	VS2SC2412KR-1	AD		B	Transistor(2SC2412K) [Q102]
190	VS2TD114EK/-1	AC		B	Transistor(2TD114EK) [Q103]
191	VS2SA1037KS-1	AB		B	Transistor(2SA1037KS) [Q105]
192	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R100]
193	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R101]
194	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R102]
195	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R103]
196	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R104]
197	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R105]
198	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R106]
199	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R107]
200	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R108]
201	VRS-TS2AD512J	AA		C	Resistor(1/10W 5.1KΩ ±5%) [R109]
202	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R111]
203	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R113]
204	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R114]
205	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%) [R115]
206	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R116]
207	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R117]
208	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R118]
209	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R119]
210	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R120]
211	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R121]
212	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R122]
213	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R123]
214	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R124]
215	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R126]
216	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R127]
217	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R128]
218	VRS-TS2AD100J	AA		C	Resistor(1/10W 10.0Ω ±5%) [R129]
219	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R130]
220	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R131]
221	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R132]
222	VRS-TS2AD105J	AA		C	Resistor(1/10W 1.0MΩ ±5%) [R133]
223	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R134]
224	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R135]
225	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R136]
226	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R137]
227	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R138]
228	VRS-TS2AD393J	AA		C	Resistor(1/10W 39KΩ ±5%) [R139]
229	VRS-TS2AD393J	AA		C	Resistor(1/10W 39KΩ ±5%) [R140]
230	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R141]
231	VRS-TS2AD100J	AA		C	Resistor(1/10W 10.0Ω ±5%) [R142]
232	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [R143]
233	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [R145]
234	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%) [R146]
235	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R147]
236	VRS-TS2AD680J	AA		C	Resistor(1/10W 68Ω ±5%) [R148]
237	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R149]
238	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R150]
239	VRS-TS2AD150J	AA		C	Resistor(1/10W 15Ω ±5%) [R151]
240	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R153]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[7] Control PWB unit					
241	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R154]
242	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R155]
243	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R156]
244	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%) [R157]
245	VRS-TS2AD472J	AA		C	Resistor(1/10W 4.7KΩ ±5%) [R158]
246	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R159]
247	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%) [R160]
248	VRS-TS2AD474J	AA		C	Resistor(1/10W 470KΩ ±5%) [R161]
249	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%) [R162]
250	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R164]
251	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R167]
252	VRS-TS2AD152J	AA		C	Resistor(1/10W 1.5KΩ ±5%) [R168]
253	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R169]
254	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R170]
255	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R171]
256	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R172]
257	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R173]
258	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R174]
259	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%) [R175]
260	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R176]
261	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R177]
262	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R178]
263	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R179]
264	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R180]
265	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R181]
266	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%) [R182]
267	VRS-TS2AD154J	AA		C	Resistor(1/10W 150KΩ ±5%) [R184]
268	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R185]
269	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R186]
270	VRS-TS2AD302J	AA		C	Resistor(1/10W 3KΩ ±5%) [R187]
271	VRS-TS2AD154J	AA		C	Resistor(1/10W 150KΩ ±5%) [R188]
272	VRS-TS2AD753J	AA		C	Resistor(1/10W 75KΩ ±5%) [R189]
273	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%) [R190]
274	VRS-TS2AD304J	AA		C	Resistor(1/10W 300KΩ ±5%) [R191]
275	VRS-TS2AD754J	AA		C	Resistor(1/10W 750KΩ ±5%) [R192]
276	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R193]
277	VRS-TS2AD474J	AA		C	Resistor(1/10W 470KΩ ±5%) [R194]
278	VRS-TS2AD514J	AG		C	Resistor(1/10W 510KΩ ±5%) [R195]
279	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R198]
280	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R199]
281	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R200]
282	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R201]
283	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R202]
284	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R203]
285	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R204]
286	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R205]
287	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R206]
288	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R207]
289	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R208]
290	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R209]
291	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R210]
292	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R211]
293	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R212]
294	VRS-TS2AD562J	AA		C	Resistor(1/10W 5.6KΩ ±5%) [R213]
295	VRSTS2AD6812F	AA		C	Resistor(1/10W 68.1KΩ ±1%) [R217]
296	VRSTS2AD1373F	AA		C	Resistor(1/10W 137KΩ ±1%) [R218]
297	VRS-TS2AD392J	AA		C	Resistor(1/10W 3.9KΩ ±5%) [R219]
298	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%) [R220]
299	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R221]
300	VRS-TS2AD163J	AA		C	Resistor(1/10W 16KΩ ±5%) [R222]
301	VRS-TS2AD473J	AA		C	Resistor(1/10W 47KΩ ±5%) [R223]
302	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R225]
303	VRS-TS2AD562J	AA		C	Resistor(1/10W 5.6KΩ ±5%) [R226]
304	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%) [R227]
305	VRS-TS2AD683J	AA		C	Resistor(1/10W 68KΩ ±5%) [R228]
306	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R229]
307	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%) [R230]
308	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R231]
309	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%) [R232]
310	VRS-TS2AD512J	AA		C	Resistor(1/10W 5.1KΩ ±5%) [R233]
311	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%) [R234]
312	VRS-TS2AD106J	AA		C	Resistor(1/10W 10MΩ ±5%) [R235]
313	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R236]
314	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R237]
315	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R238]
316	VRS-TS2AD121J	AA		C	Resistor(1/10W 120Ω ±5%) [R239]
317	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R240]
318	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%) [R242]
319	VRS-TS2AD152J	AA		C	Resistor(1/10W 1.5KΩ ±5%) [R243]
320	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R244]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[7] Control PWB unit					
321	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%) [R245]
322	VRS-TS2AD473J	AA		C	Resistor(1/10W 47KΩ ±5%) [R246]
323	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%) [R247]
324	VRS-TS2AD913J	AA		C	Resistor(1/10W 91KΩ ±5%) [R248]
325	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R249]
326	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R250]
327	VRS-TS2AD154J	AA		C	Resistor(1/10W 150KΩ ±5%) [R251]
328	VRS-TS2AD224J	AA		C	Resistor(1/10W 220KΩ ±5%) [R252]
329	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%) [R253]
330	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%) [R254]
331	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R256]
332	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R257]
333	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R258]
334	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R261]
335	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R262]
336	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R263]
337	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4) [RA2]
338	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA3]
339	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA4]
340	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA5]
341	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA6]
342	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4) [RA7]
343	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA8]
344	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA9]
345	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA10]
346	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA11]
347	RR-TZ3012SCJ0	AB		C	Block resistor(100Ωx4) [RA12]
348	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4) [RA13]
349	RR-TZ3012SCJ0	AB		C	Block resistor(100Ωx4) [RA14]
350	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4) [RA15]
351	RRLYD3130SCZZ	AN		B	Relay [RY1]
352	QSW-M2259XHZZ	AF		B	Cover switch [SW1]
353	RCRSZ2108SCZZ	AQ		B	Crystal(49.920MHz) [X1]
354	RCRSQ1005LCZZ	AE		B	Crystal(19.66MHz) [X2]
355	RCRSB0297AFZZ	AD		B	Crystal(32.768KHz) [X3]
	(Unit)				
901	CPWBS3025FF01		N	E	Control PWB unit(Without ROM)
[8] TEL-Liu PWB unit					
1	VHVRA501PV6-1	AE		B	Varistor(RA-501P-V6-2) [AR1]
2	VHVRA501PV6-1	AE		B	Varistor(RA-501P-V6-2) [AR2]
3	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C1]
4	RC-FZ2020SCZZ	AE		C	Capacitor(250WV 1μF) [C2]
5	RC-FZ2025SCZZ	AE		C	Capacitor(250WV 0.68μF) [C3]
6	VCQYNA1HM334K	AD		C	Capacitor(50WV 0.33μF) [C4]
7	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C5]
8	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C6]
9	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C7]
10	VCEAGA1EW107M	AB		C	Capacitor(25WV 100μF) [C8]
11	VCEAGA1HW225M	AA		C	Capacitor(50WV 2.2μF) [C9]
12	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7μF) [C10]
13	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF) [C11]
14	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF) [C12]
15	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF) [C13]
16	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF) [C14]
17	VCEAGA1HW225M	AA		C	Capacitor(50WV 2.2μF) [C15]
18	VCKYTQ1HB223K	AB		C	Capacitor(50WV 0.022μF) [C101]
19	VCKYTQ1HB223K	AB		C	Capacitor(50WV 0.022μF) [C102]
20	VCKYTQ1HB393K	AA		C	Capacitor(50WV 0.039μF) [C103]
21	VCKYTV1HB472K	AA		C	Capacitor(50WV 4700PF) [C104]
22	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C105]
23	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C106]
24	VCKYTV1HB562K	AA		C	Capacitor(50WV 5600PF) [C107]
25	VCKYTV1HB221K	AA		C	Capacitor(50WV 220PF) [C110]
26	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C112]
27	VCKYTV1HB473K	AA		C	Capacitor(50WV 0.047μ) [C113]
28	VCKYTV1HB473K	AA		C	Capacitor(50WV 0.047μ) [C114]
29	VCKYTV1HB122K	AB		C	Capacitor(50WV 1200PF) [C115]
30	VCKYTQ1HB104K	AB		C	Capacitor(50WV 0.1μF) [C116]
31	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C118]
32	VCKYTV1HB332K	AA		C	Capacitor(50WV 3300PF) [C119]
33	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF) [C120]
34	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF) [C121]
35	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C122]
36	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C125]
37	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C126]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[8] TEL-Liu PWB unit					
38	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF) [C127]
39	VCKYTV1HB821K	AA		C	Capacitor(50WV 820PF) [C128]
40	VCKYTV1HB473K	AA		C	Capacitor(50WV 0.047μF) [C130]
41	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF) [C131]
42	VCKYTV1EB105K	AD		C	Capacitor(25WV 1μF) [C132]
43	RRLYZ3427SCZZ	AN		B	Relay [CML]
44	QJAKZ2070SC0D	AF		C	Jack [CNHJ]
45	QCNCW2509SC1D	AF		C	Connector(14pin) [CNLIUA]
46	QCNCW2509SC0F	AD		C	Connector(6pin) [CNLIUB]
47	QJAKZ2069SCF0	AH		C	Jack [CNLNJ]
48	VHDDSS131//-1	AA		B	Diode(1SS131) [D1]
49	VHDDSS131//-1	AA		B	Diode(1SS131) [D3]
50	VHDDSS133//-1	AA		B	Diode(1SS133) [D4]
51	VHDDSS133//-1	AA		B	Diode(1SS133) [D5]
52	VHINJM2904M-2	AG		B	IC(NJM2904M) [IC101]
53	VHINJM2904M-2	AG		B	IC(NJM2904M) [IC102]
54	VHINJM2904M-2	AG		B	IC(NJM2904M) [IC103]
55	RCILZ2144SCZZ			C	Coil(Z2144) [JP103]
56	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [JP104]
57	RCILZ2144SCZZ			C	Coil(Z2144) [JP105]
58	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [JP106]
59	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [JP107]
60	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [JP108]
61	RCILF2125SCZZ			C	Coil(4.7mH) [L2]
62	RCILF2125SCZZ			C	Coil(4.7mH) [L3]
63	RFILN2027XHZZ	AC		C	Coil(R-5C) [L5A]
64	RFILN2027XHZZ	AC		C	Coil(R-5C) [L5B]
65	RFILN2027XHZZ	AC		C	Coil(R-5C) [L6]
66	RFILN2027XHZZ	AC		C	Coil(R-5C) [L7]
67	RFILN2027XHZZ	AC		C	Coil(R-5C) [L8]
68	VHPTLP627//-1	AH		B	Photo coupler(TLP627) [PC1]
69	VHPTLP521-1BL	AE		B	Photo coupler(TLP521) [PC2]
70	VHPTLP627//-1	AH		B	Photo coupler(TLP627) [PC3]
71	VHPTLP521-1BL	AE		B	Photo coupler(TLP521) [PC6]
72	VHPSG206S//-1	AG		B	Photo transistor(SG206S) [PE]
73	VHPSG206S//-1	AG		B	Photo transistor(SG206S) [PIN]
74	VSBS108///-1	AE		B	FET(BS108) [Q1]
75	VSDTC114EK/-1	AB		B	Transistor(DTC114EK) [Q102]
76	VS2SC2412KR-1	AD		B	Transistor(2SC2412K) [Q103]
77	VSDTC114EK/-1	AB		B	Transistor(DTC114EK) [Q106]
78	VSDTC114EK/-1	AB		B	Transistor(DTC114EK) [Q107]
79	VSDTC114EK/-1	AB		B	Transistor(DTC114EK) [Q108]
80	VSDTC114EK/-1	AB		B	Transistor(DTC114EK) [Q109]
81	VSDTC114EK/-1	AB		B	Transistor(DTC114EK) [Q110]
82	VRS-HT3DA470J	AA		C	Resistor(2W 47Ω ±5%) [R1]
83	VRD-HT2HY102J	AA		C	Resistor(1/2W 1.0KΩ ±5%) [R3]
84	VRS-TS2AD433J	AA		C	Resistor(1/10W 43KΩ ±5%) [R102]
85	VRS-TS2AD301J	AA		C	Resistor(1/10W 300Ω ±5%) [R103]
86	VRS-TP2BD150J	AA		C	Resistor(1/8W 15Ω ±5%) [R107]
87	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R108]
88	VRS-TP2BD150J	AA		C	Resistor(1/8W 15Ω ±5%) [R109]
89	VRS-TS2AD133J	AA		C	Resistor(1/10W 13KΩ ±5%) [R119]
90	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%) [R120]
91	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%) [R121]
92	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%) [R122]
93	VRS-TS2AD513J	AA		C	Resistor(1/10W 51KΩ ±5%) [R123]
94	VRS-TS2AD513J	AA		C	Resistor(1/10W 51KΩ ±5%) [R124]
95	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R125]
96	VRS-TS2AD131J	AA		C	Resistor(1/10W 130Ω ±5%) [R126]
97	VRS-TS2AD133J	AA		C	Resistor(1/10W 13KΩ ±5%) [R127]
98	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R131]
99	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R132]
100	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%) [R133]
101	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%) [R134]
102	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%) [R135]
103	VRS-TS2AD822J	AA		C	Resistor(1/10W 8.2KΩ ±5%) [R136]
104	VRS-TS2AD152J	AA		C	Resistor(1/10W 1.5KΩ ±5%) [R137]
105	VRS-TS2AD122J	AA		C	Resistor(1/10W 1.2KΩ ±5%) [R139]
106	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%) [R140]
107	VRS-TS2AD100J	AA		C	Resistor(1/10W 10.0Ω ±5%) [R141]
108	VRS-TS2AD621J	AA		C	Resistor(1/10W 620Ω ±5%) [R142]
109	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%) [R143]
110	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%) [R144]
111	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%) [R145]
112	VRS-TS2AD112J	AA		C	Resistor(1/10W 1.1KΩ ±5%) [R147]
113	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R148]
114	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%) [R149]
115	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R150]
116	VRS-TS2AD132J	AA		C	Resistor(1/10W 1.3KΩ ±5%) [R151]
117	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%) [R152]



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
<b>[8] TEL-Liu PWB unit</b>					
118	VRS-TS2AD222J	AA		C	Resistor(1/10W 2.2KΩ ±5%) [R153]
119	VRS-TS2AD753J	AA		C	Resistor(1/10W 75KΩ ±5%) [R154]
120	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%) [R155]
121	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%) [R156]
122	VRS-TS2AD243J	AA		C	Resistor(1/10W 24KΩ ±5%) [R158]
123	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%) [R159]
124	VRS-TS2AD913J	AA		C	Resistor(1/10W 91KΩ ±5%) [R160]
125	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%) [R166]
126	VRS-TS2AD563J	AA		C	Resistor(1/10W 56KΩ ±5%) [R167]
127	VRS-TS2AD100J	AA		C	Resistor(1/10W 10.0Ω ±5%) [R168]
128	VHDS1ZB60/-1	AC		B	Diode bridge(S1ZB60) [REC1]
129	QSW-Z2263XHZZ	AG		B	Hook switch [SW1]
130	RTRNI2142XHZZ	AR		B	Transformer(I2142) [T1]
131	VHVDS301L/-U	AF		B	Varistor(DSS301L) [VA1]
132	VHEMTZJ300B-1	AA		B	Zener diode(MTZJ30B) [ZD2]
133	VHEMTZJ6R8B-1	AC		B	Zener diode(MTZJ6R8B) [ZD4]
134	VHEMTZJ300B-1	AA		B	Zener diode(MTZJ30B) [ZD5]
135	VHEMTZJ3R3B-1			B	Zener diode(MTZJ3R3B) [ZD6]
136	VHEMTZJ3R3B-1			B	Zener diode(MTZJ3R3B) [ZD7]
137	VHEMTZJ2R4B-1	AB		B	Zener diode(MTZJ2R4B) [ZD10]
138	VHEMTZJ2R4B-1	AB		B	Zener diode(MTZJ2R4B) [ZD11]
	(Unit)				
901	DCEKL457BFF22		N	E	TEL-Liu PWB unit
<b>[9] Power supply PWB unit</b>					
1	0CBUGFM224KR/	AF		C	Capacitor(RE224-C) [C1]
2	0CBUGZ1186ZZ/	AL		C	Capacitor(KMF400VB-39M 18x20) [C2]
3	0CBUGZ1187ZZ/	AD		C	Capacitor(DE1407-477SL471J2K) [C3]
4	0CBUGFF472BQ/	AC		C	Capacitor(AMZ-472K50) [C4]
5	0CBUGFF223JS/	AC		C	Capacitor(ECQB1H223KM3) [C5]
6	0CBUGCM332BJ/	AF		C	Capacitor(DE1410-1E332M-KX) [C7]
7	0CBUGAE331TS/	AH		C	Capacitor(LXJ35VB330(M)) [C8]
8	0CBUGFF474JA/	AF		C	Capacitor(ECQV1H474JL3) [C9]
9	0CBUGZ1188ZZ/	AK		C	Capacitor(16YXG2200M(10X28L)) [C10]
10	0CBUGCF104CQ/	AD		C	Capacitor(UP050F104Z-B) [C11]
11	0CBUGCS101AA/	AD		C	Capacitor(DD05-989B101K500) [C13]
12	0CBUGFM104KD/	AF		C	Capacitor(PA104-ZC) [C15]
13	0CBUGAB101RV/	AF		C	Capacitor(KME10VB100(M)) [C16]
14	0CBUGFF102BQ/	AD		C	Capacitor(AMZ-102K50) [C17]
15	0CBPZZ0931ZZ/	AH		C	Connector(IMS-A-9110S-09L) [CN1]
16	0CBPKZ0194ZZ/	AC		C	Base post assy(B 2P3-VH) [CN2]
17	0CBUBC0125DK/	AD		B	Diode(ERA15-06) [D1]
18	0CBUBC0125DK/	AD		B	Diode(ERA15-06) [D2]
19	0CBUBC0125DK/	AD		B	Diode(ERA15-06) [D3]
20	0CBUBC0125DK/	AD		B	Diode(ERA15-06) [D4]
21	0CBUBA0011AL/	AD		B	Diode(1SS133) [D5]
22	0CBUBC0336AZ/	AL		B	Diode(S3L20U-4004P15) [D7]
23	0CBUBC0302BZ/	AE		B	Diode(SR140) [D8]
24	0CBPJCEJ1601/	AH		A	Current fuse(21501.6 ME600) [F1]
25	0CBPJCEJ1601/	AH		A	Current fuse(21501.6 ME600) [F2]
26	0CBPZZ0906ZZ/	AH		A	Circuit protect chip(CCP2E100) [F3]
27	0CBUCB0167AZ/	AR		B	IC(UPC29M05HF) [IC1]
28	0CBUKZ0826ZZ/	AK		C	Filter(ELF15N003A) [L1]
29	0CBUZZ0156ZZ/	AN		C	Coil(RS208) [L2]
30	0CBLRZ6581ZN/	AQ		C	Heat sink [MT1]
31	0CBLRZ6562ZN/	AQ		C	Heat sink [MT2]
32	0CBUDC0163CZ/	AG		B	Photo coupler(PC123YS) [PC1]
33	0CBUDC0163CZ/	AG		B	Photo coupler(PC123YS) [PC2]
34	0CBUAG0161AC/	AQ		B	FET(FS5KM-18A AN) [Q1]
35	0CBUAC0264AZ/	AD		B	Transistor(2SC1741AS QR) [Q2]
36	0CBUAC0034EZ/	AE		B	Transistor(2SC1740S) [Q3]
37	0CBUAC0034EZ/	AE		B	Transistor(2SC1740S) [Q4]
38	0CBUAC0284BK/	AF		B	Transistor(2SC2710) [Q5]
39	0CBUAC0284BK/	AF		B	Transistor(2SC2710) [Q6]
40	0CBUEEC335CF/	AC		C	Resistor(RD50SS-335J) [R1]
41	0CBUEEB824CF/	AC		C	Resistor(RD50SS-824J) [R2]
42	0CBUEEB824CF/	AC		C	Resistor(RD50SS-824J) [R3]
43	0CBUEEB101CT/	AC		C	Resistor(RD16S 101J) [R4]
44	0CBUEEB152CT/	AC		C	Resistor(RD16S 152J) [R5]
45	0CBUEEB223CT/	AC		C	Resistor(RD16S 223J) [R6]
46	0CBUEEB330CT/	AC		C	Resistor(RD16S 330J) [R7]
47	0CBUEEB473CT/	AC		C	Resistor(RD16S 473J) [R8]
48	0CBUEEB471CT/	AC		C	Resistor(RD16S 471J) [R9]
49	0CBUEFDR33DB/	AE		C	Resistor(RSMF1TBR33G) [R10]
50	0CBUEEB390CT/	AC		C	Resistor(RD16S 390J) [R11]
51	0CBUEEB334CT/	AC		C	Resistor(RD16S 334J) [R12]

UX-470DE  
FO-880DE/NX-670DE[illegible]

## Index

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
[C]				
CCNW-202AFF01	1-9			C
CGERH2444XHY1	1-10	AF		C
CGERH2459XH01	5-1	AM		C
CLEVP2298XH01	5-2	AC		C
CLEVP2299XH01	5-6	AC		C
CLEVP2300XH01	5-7	AC		C
CLEVP2303XH01	5-9	AC		C
CPLTP3002XHB2	6-5	AK		E
CPWBS3025FF01	1-44		N	E
"	7-901		N	E
CROLR2407XH01	2-10	AN		C
[D]				
DCEKL457BFF22	1-45		N	E
"	8-901		N	E
DCEKP450BXHG3	3-7		N	E
DCEKP450BXHG4	3-7		N	E
DCEKP478BFF04	1-1		N	E
"	3-901		N	E
DCEKP478BFF07	1-1		N	E
"	3-901		N	E
DCEKP478BFF09	1-1		N	E
"	3-901		N	E
DUNTK419BFFBG	6-19			E
DUNTK419BFFWH	6-19			E
[G]				
GCABA2324XHSX	3-1		N	D
GCABA2324XHS4	3-1		N	D
GCABA2324XHS6	3-1		N	D
GCABB2325FFSC	1-14			D
GCABB2325FFSE	1-14			D
GCOVA2403XHSA	2-1	AL		C
GCOVA2403XHSC	2-1	AN		C
GLEGG2063FFZZ	1-86			C
[H]				
HPNLH2389XHSY	1-85		N	D
HPNLH2389XHS7	1-85		N	D
HPNLH2391XHSE	1-85		N	D
[J]				
JBTN-2242XHSA	3-2	AG		C
JBTN-2242XHSC	3-2	AG		C
JBTN-2243XHSC	3-3	AD		C
JBTN-2244XHSA	3-4	AD		C
JBTN-2245XHSA	3-5	AD		C
JBTN-2246XHSA	3-6	AD		C
JBTN-2246XHSC	3-6	AD		C
JBTN-2247XHSA	3-9	AE	N	C
JBTN-2247XHSC	3-9		N	C
JBTN-2252XHSA	3-3	AE		C
JBTN-2252XHSC	3-3	AE		C
JKNBP2091XHZZ	2-2	AC		C
[L]				
LANGF2817XHFW	1-15	AF		C
LBSHP2088AXZZ	1-16	AC		C
LBSHP2104XHZZ	2-13	AC		C
LBSHP2105XHZZ	2-14	AC		C
LFRM-2198XHZZ	1-31	AK		C
LFRM-2199XHZZ	2-15	AK		C
LFRM-2200XHZZ	5-11	AB		C
LPLTG2911XHZZ	4-1	AE		C
LPLTM2994XHFW	5-12	AE		C
LPLTM2995XHFW	1-46	AS		C
LPLTP2908XHZZ	4-2	AE		C
LPLTP2997XHZZ	2-25	AD		C
LPLTP2998XHZZ	2-26	AF		C
LPLTP3001XHSA	2-27	AH		C
LPLTP3001XHSC	2-27	AF		C
LPLTP3003XHSA	6-7	AH		C
LX-BZ2138XHZZ	2-B6	AB		C
[M]				
MCAMP2025XHZZ	5-13	AB		C
MCAMP2026XHZZ	5-14	AB		C
MLEVP2290XHZZ	1-17	AC		C
MLEVP2291XHZZ	2-16	AD		C
MLEVP2292XHZZ	1-18	AD		C
MLEVP2293XHZZ	2-17	AD		C
MLEVP2294XHZZ	1-19	AD		C
MLEVP2295XHZZ	1-20	AD		C
MLEVP2296XHZZ	1-21	AD		C
MLEVP2297XHZZ	1-4	AC		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
MLEVP2301XHZZ	5-15	AB		C
MLEVP2302XHZZ	1-84	AC		C
MSPRC2832XHZZ	2-3	AC		C
MSPRC3057XHfJ	1-47	AC		C
MSPRC3059XHfJ	1-33	AC		C
MSPRC3061XHfJ	1-35	AB		C
MSPRC3062XHfJ	2-28	AB		C
MSPRC3063XHfJ	2-29	AC		C
MSPRC3064XHfJ	2-18	AC		C
MSPRC3071XHfJ	4-4	AB		C
MSPRC3102XHfJ	1-34	AC		C
MSPRC3103XHfJ	1-32	AC		C
MSPRD3065XHfJ	2-7	AB		C
MSPRD3070XHfJ	5-16	AB		C
MSPRD3073XHfJ	1-23	AB		C
MSPRD3082XHfJ	1-22	AC		C
MSPRD3104XHfJ	1-92	AC		C
MSPRD3105XHfJ	2-34	AC		C
MSPRP3054XHfJ	1-24	AD		C
MSPRP3055XHfJ	1-25	AD		C
MSPRP3079XHfJ	4-5	AE		C
MSPRT2951XHZZ	4-6	AC		C
MSPRT3069XHfJ	1-5	AB		C
[N]				
NBRGP2141XHZZ	4-7	AH		C
NGERH2280XHZZ	5-17	AC		C
NGERH2311XHZZ	5-18	AD		C
NGERH2441XHZZ	2-19	AC		C
NGERH2442XHZZ	2-20	AC		C
NGERH2445XHZZ	1-26	AB		C
"	4-8	AB		C
NGERH2446XHZZ	5-19	AB		C
NGERH2447XHZZ	5-20	AB		C
NGERH2448XHZZ	5-21	AB		C
NGERH2449XHZZ	5-22	AB		C
NGERH2450XHZZ	5-23	AB		C
NGERH2451XHZZ	5-24	AB		C
NGERH2452XHZZ	5-25	AB		C
NGERH2454XHZZ	5-26	AB		C
NGERH2455XHZZ	6-15	AD		C
NGERH2456XHZZ	6-16	AC		C
NGERH2460XHZZ	2-21	AC		C
NGERH2461XHZZ	5-27	AB		C
NGERP2318XHZZ	2-4	AD		C
NROLP2332XHZZ	2-8	AD		C
NROLP2334XHZA	4-9	AC		C
NROLP2406XHZZ	4-10	AD		C
NROLR2375XHZZ	1-6	AL		C
NROLR2408XHZZ	2-11	AD		C
NROLR2409XHZZ	2-22	AW		C
NROLR2410XHZZ	1-27	AP		C
NROLR2411XHZZ	4-11	AV		C
NSFTM2311XHZZ	1-28	AG		C
"	2-23	AG		C
NSFTP2302XHZZ	1-7	AD		C
NSFTP2304XHZZ	2-24	AD		C
NSFTZ257XHZZ	4-12	AG		C
[P]				
PCOVP2122XHZZ	1-48	AK		C
PCUSS2120XHZZ	1-89	AB		C
PGIDM2529XHZZ	1-40	AD		C
PGIDM2530XHZZ	1-41	AD		C
PGIDM2531XHZZ	1-36	AD		C
PGIDM2532XHZZ	1-37	AD		C
PGIDM2533XHSA	2-5	AD		C
PGIDM2533XHSC	2-5	AD		C
PGIDM2534XHSA	2-6	AD		C
PGIDM2534XHSC	2-6	AD		C
PGIDM2535XHSA	2-35	AC		C
PGIDM2535XHSC	2-35	AC		C
PGIDM2536FFZZ	4-13			C
PGIDM2537XHZZ	2-9	AF		C
PGIDM2538XHZZ	1-8	AM		C
PGUMR2160XHZZ	2-12	AE		C
PHOP-2101XHSA	2-33	AK		C
PHOP-2101XHSC	2-33	AH		C
PHOP-2102XHZZ	6-8	AE		C
PRBNN2015SCZZ	6-17	AQ		S
PSEL-2015SCZZ	2-30	AB		C
PSHEZ3293XHZZ	2-31	AH		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
PSHEZ3410FFZZ	1-87			C
PSHEZ3425XHZZ	1-97	AL		C
PSHEZ3428XHZZ	1-29	AE		C
PSHEZ3429XHZZ	1-90	AD		C
PSHEZ3431XHZZ	2-32	AC		C
PSHEZ3432XHZZ	1-95	AE		C
PSHEZ3436XHZZ	1-100	AC		C
[Q]				
QACCV662AXHZZ	1-49	AZ		B
QCNCM2401SC0B	7-152	AA		C
QCNCM2442SC0B	7-146	AB		C
QCNCM2575SC0F	7-148	AE		C
QCNCM2575SC0I	7-151	AF		C
QCNCM2575SC1D	7-147	AC		C
QCNCM7014SC0F	7-149	AB		C
QCNCM7014SC0G	7-145	AB		C
QCNCM7014SC1E	7-150	AC		C
QCNCM7014SC1F	7-153	AD		C
QCNCW2509SC0F	8-46	AD		C
QCNCW2509SC1D	8-45	AF		C
QCNW-3976XHBG	6-14	AK		C
QCNW-3976XHOW	6-14	AK		C
QCNW-4649FFZZ	6-13			C
QCNW-4850XHZZ	1-42	AG		C
QCNW-4933XHZZ	5-28	AC		C
QCNW-4935XHZZ	1-2	AN	N	C
"	3-8	AN	N	C
QCNW-4936XHZZ	1-38	AN		C
QCNW-4971XHZZ	1-50	AD		C
QJAKZ2069SCF0	8-47	AH		C
QJAKZ2070SC0D	8-44	AF		C
QSOCZ0115SC32	7-163	AC	N	C
QSW-F2224SCZZ	5-29	AE		B
QSW-M2259XHZZ	7-352	AF		B
QSW-Z2263XHZZ	8-129	AG		B
[R]				
RC-FZ2020SCZZ	8-4	AE		C
RC-FZ2025SCZZ	8-5	AE		C
RCILF2125SCZZ	8-61			C
"	8-62			C
RCILZ2104SCZZ	7-182	AK		C
RCILZ2144SCZZ	8-55			C
"	8-57			C
RCILZ2145XHZZ	7-176	AF		C
"	7-177	AF		C
"	7-181	AF		C
"	7-184	AF		C
"	7-186	AF		C
RCORF2063XHZZ	1-98	AF		B
RCORF2064XHZZ	1-51	AF		B
RCORF2103XHZZ	1-102	AF		B
RCRSB0297AFZZ	7-355	AD		B
RCRSQ1005LCZZ	7-354	AE		B
RCRSZ2108SCZZ	7-353	AQ		B
RDENT2137XHZZ	1-88	BL		E
"	9-901	BL		E
RFILN2027XHZZ	8-63	AC		C
"	8-64	AC		C
"	8-65	AC		C
"	8-66	AC		C
"	8-67	AC		C
RHEDZ2058XHZZ	1-39	BR		B
RMOTZ2145XHZZ	5-30	BA		B
RR-TZ3012SCJ0	7-347	AB		C
"	7-349	AB		C
RR-TZ3017SCZZ	7-338	AC		C
"	7-339	AC		C
"	7-340	AC		C
"	7-341	AC		C
"	7-343	AC		C
"	7-344	AC		C
"	7-345	AC		C
"	7-346	AC		C
"	7-350	AC		C
RR-TZ3018SCZZ	7-337	AC		C
"	7-342	AC		C
"	7-348	AC		C
RRLYD3130SCZZ	7-351	AN		B
RRLY23427SCZZ	8-43	AN		B
RTRNI2142XHZZ	8-130	AR		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
RUNTZ2037XHZZ	1-43	BL		B
[S]				
SPAKA480AFFZZ	6-12			D
SPAKA481AFFZZ	6-11			D
SPAKA489AFFZZ	6-10			D
SPAKA490AFFZZ	6-9			D
SPAKC046BFFZZ	6-1		N	D
SPAKC048BFFZZ	6-1		N	D
SPAKC050BFFZZ	6-1		N	D
SPAKP3385FFZZ	6-18			D
[T]				
TINSG3963FFZZ	6-3		N	D
TINSG3964FFZZ	6-3		N	D
TINSG3965FFZZ	6-3		N	D
TLABH4752XHZZ	6-6	AB		D
TLABH4834FFZZ	6-4			D
TLABH4835XHZZ	6-21			D
TLABH4880FFZZ	6-4			D
TLABH4899XHZZ	6-23			D
TLABM4878FFZZ	1-99			D
TLABM4915FFZZ	6-2		N	D
TLABM4918FFZZ	6-2		N	D
TLABM4920FFZZ	6-22		N	D
TLABM4921FFZZ	6-2		N	D
TLABM4923FFZZ	6-22		N	D
TLABS4917FFZZ	1-101			D
[U]				
UBATL2049SCZZ	7-1	AF		B
[V]				
VCCCTV1HH101J	7-111	AA		C
"	7-112	AA		C
"	7-113	AA		C
"	7-114	AA		C
"	7-115	AA		C
"	7-116	AA		C
"	7-117	AA		C
"	7-123	AA		C
"	7-124	AA		C
"	7-127	AA		C
"	7-128	AA		C
"	7-129	AA		C
"	7-136	AA		C
VCCCTV1HH150J	7-29	AA		C
"	7-42	AA		C
VCCCTV1HH220J	7-87	AA		C
"	7-110	AA		C
VCCCTV1HH271J	7-122	AA		C
VCCCTV1HH5R0C	7-25	AA		C
"	7-26	AA		C
VCCCTV1HH680J	7-44	AA		C
"	7-46	AA		C
"	7-47	AA		C
"	7-59	AA		C
"	7-60	AA		C
"	7-66	AA		C
"	7-67	AA		C
"	7-76	AA		C
"	7-95	AA		C
"	7-96	AA		C
"	7-97	AA		C
"	7-98	AA		C
"	7-138	AA		C
"	7-139	AA		C
VCCSTV1HL102J	7-100	AA		C
"	7-120	AA		C
VCEAGA1EW107M	8-10	AB		C
VCEAGA1EW476M	7-6	AA		C
"	7-10	AA		C
"	8-14	AA		C
"	8-16	AA		C
VCEAGA1HW105M	7-4	AB		C
VCEAGA1HW106M	7-3	AA		C
"	7-5	AA		C
"	7-7	AA		C
"	8-3	AA		C
"	8-7	AA		C
"	8-8	AA		C
"	8-9	AA		C
"	8-15	AA		C
VCEAGA1HW107M	7-9	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCEAGA1HW225M	8-11	AA		C
"	8-17	AA		C
VCEAGA1HW226M	7-8	AB		C
"	8-13	AB		C
VCEAGA1HW475M	7-2	AA		C
"	8-12	AA		C
VCKYTQ1EB105K	8-42	AD		C
VCKYTQ1HB104K	8-30	AB		C
VCKYTQ1HB223K	8-18	AB		C
"	8-19	AB		C
VCKYTQ1HB393K	8-20	AA		C
VCKYTQ1HB473K	8-40	AA		C
VCKYTV1CB224K	7-125	AC		C
"	7-126	AC		C
VCKYTV1CF105Z	7-12	AB		C
"	7-14	AB		C
"	7-17	AB		C
"	7-27	AB		C
"	7-30	AB		C
"	7-36	AB		C
"	7-43	AB		C
"	7-51	AB		C
"	7-52	AB		C
"	7-55	AB		C
"	7-57	AB		C
"	7-75	AB		C
"	7-77	AB		C
"	7-78	AB		C
"	7-85	AB		C
"	7-86	AB		C
"	7-88	AB		C
"	7-92	AB		C
"	7-94	AB		C
"	7-101	AB		C
"	7-106	AB		C
"	7-119	AB		C
"	7-121	AB		C
"	7-130	AB		C
"	7-131	AB		C
VCKYTQ1EB104K	7-80	AA		C
"	7-81	AA		C
"	7-82	AA		C
"	7-83	AA		C
"	7-103	AA		C
"	7-107	AA		C
"	7-109	AA		C
"	8-41	AA		C
VCKYTV1EF104Z	7-15	AA		C
"	7-19	AA		C
"	7-20	AA		C
"	7-28	AA		C
"	7-31	AA		C
"	7-32	AA		C
"	7-48	AA		C
"	7-49	AA		C
"	7-50	AA		C
"	7-54	AA		C
"	7-62	AA		C
"	7-68	AA		C
"	7-69	AA		C
"	7-84	AA		C
"	7-102	AA		C
"	7-133	AA		C
"	7-135	AA		C
"	8-26	AA		C
"	8-35	AA		C
"	8-36	AA		C
"	8-37	AA		C
"	8-38	AA		C
VCKYTV1HB102K	7-11	AA		C
"	7-16	AA		C
"	7-24	AA		C
"	7-35	AA		C
"	7-38	AA		C
"	7-39	AA		C
"	7-40	AA		C
"	7-41	AA		C
"	7-53	AA		C
"	7-56	AA		C
"	7-58	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCKYTV1HB102K	7-61	AA		C
"	7-63	AA		C
"	7-64	AA		C
"	7-65	AA		C
"	7-72	AA		C
"	7-73	AA		C
"	7-74	AA		C
"	7-89	AA		C
"	7-91	AA		C
"	7-93	AA		C
"	7-134	AA		C
"	7-137	AA		C
"	7-140	AA		C
"	7-141	AA		C
"	7-142	AA		C
"	7-143	AA		C
"	7-144	AA		C
"	7-232	AA		C
"	7-233	AA		C
"	8-31	AA		C
"	8-33	AA		C
VCKYTV1HB103K	7-37	AB		C
"	7-70	AB		C
VCKYTV1HB122K	8-29	AB		C
VCKYTV1HB221K	8-25	AA		C
VCKYTV1HB222K	7-13	AA		C
"	7-18	AA		C
"	7-21	AA		C
"	7-22	AA		C
"	7-23	AA		C
"	7-33	AA		C
"	7-34	AA		C
"	7-45	AA		C
"	7-90	AA		C
"	7-105	AA		C
"	8-22	AA		C
"	8-23	AA		C
"	8-34	AA		C
VCKYTV1HB331K	7-79	AA		C
VCKYTV1HB332K	8-32	AA		C
VCKYTV1HB472K	7-71	AA		C
"	8-21	AA		C
VCKYTV1HB473K	7-104	AA		C
"	8-27	AA		C
"	8-28	AA		C
VCKYTV1HB562K	8-24	AA		C
VCKYTV1HB821K	8-39	AA		C
VCKYTV1HF104Z	7-99	AA		C
"	7-108	AA		C
"	7-132	AA		C
VCQYNA1HM334K	8-6	AD		C
VHDDSS131/-/1	8-48	AA		B
"	8-49	AA		B
VHDDSS133/-/1	8-50	AA		B
"	8-51	AA		B
VHDBR705D/-/1	7-158	AD		B
VHDS1ZB60/-/1	8-128	AC		B
VHD1SS355/-/1	7-155	AB		B
"	7-156	AB		B
"	7-157	AB		B
VHEMPZP4748A1	7-154	AA		B
VHEMTZJ2R4B-1	8-137	AB		B
"	8-138	AB		B
VHEMTZJ3R3B-1	8-135			B
"	8-136			B
VHEMTZJ300B-1	8-132	AA		B
"	8-134	AA		B
VHEMTZJ6R8B-1	8-133	AC		B
VHIHCF4051M1T	7-171	AG		B
VHIHCF4053M1T	7-172	AG		B
"	7-174	AG		B
VHIKM29W040-1	7-161	AV		B
VHIMC34119DR2	7-170	AH		B
VHINJM2902M-1	7-175	AF		B
VHINJM2904M-1	7-173	AE		B
VHINJM2904M-2	8-52	AG		B
"	8-53	AG		B
"	8-54	AG		B
VHIPST596CMT1	7-168	AF		B
VHIR96V24FC1M	7-166	BS	N	B



PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VHIR96V24FC1M	7-169	BS	N	B
VHITC74HCU04F	7-167	AE		B
VHIULN2003ANS	7-162	AE		B
VHIW24010S7LE	7-160	AZ		B
VHI27020FKW0B	7-163		N	B
VHI27020FKX0G	7-163		N	B
VHPSG206S//1	7-187	AG		B
"	8-72	AG		B
"	8-73	AG		B
VHPTLP627//1	8-69	AE		B
"	8-71	AE		B
VHPTLP627//1	8-68	AH		B
"	8-70	AH		B
VHVDSS301L/-U	8-131	AF		B
VHVICPS07//1	7-159	AA		B
VHVRA501PV6-1	8-1	AE		B
"	8-2	AE		B
VP-1M3R3J0000	7-180	AG		C
VRD-HT2HY102J	8-83	AA		C
VRS-HT3DA470J	8-82	AA		C
VRS-TP2BD150J	8-86	AA		C
"	8-88	AA		C
VRS-TS2AD000J	7-118	AA		C
"	7-179	AA		C
"	7-183	AA		C
"	7-185	AA		C
"	7-193	AA		C
"	7-206	AA		C
"	7-207	AA		C
"	7-210	AA		C
"	7-250	AA		C
"	7-279	AA		C
"	7-299	AA		C
"	7-317	AA		C
"	7-331	AA		C
"	7-332	AA		C
"	7-334	AA		C
"	7-335	AA		C
"	7-336	AA		C
"	8-56	AA		C
"	8-58	AA		C
"	8-59	AA		C
"	8-60	AA		C
"	8-95	AA		C
"	8-113	AA		C
"	8-115	AA		C
"	8-121	AA		C
VRS-TS2AD100J	7-218	AA		C
"	7-231	AA		C
"	8-107	AA		C
"	8-127	AA		C
VRS-TS2AD101J	7-235	AA		C
"	7-243	AA		C
"	7-291	AA		C
"	7-292	AA		C
"	7-293	AA		C
"	7-315	AA		C
"	7-330	AA		C
VRS-TS2AD102J	7-244	AA		C
"	8-91	AA		C
VRS-TS2AD103J	7-194	AA		C
"	7-227	AA		C
"	7-230	AA		C
"	7-246	AA		C
"	7-251	AA		C
"	7-258	AA		C
"	7-260	AA		C
"	7-261	AA		C
"	7-280	AA		C
"	7-283	AA		C
"	7-289	AA		C
"	7-290	AA		C
"	7-302	AA		C
"	7-306	AA		C
"	7-320	AA		C
"	7-325	AA		C
"	7-326	AA		C
"	7-333	AA		C
"	8-87	AA		C
"	8-90	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-TS2AD104J	7-203	AA		C
"	7-217	AA		C
"	7-220	AA		C
"	7-242	AA		C
"	7-268	AA		C
"	7-269	AA		C
"	7-276	AA		C
"	7-286	AA		C
"	8-106	AA		C
VRS-TS2AD105J	7-222	AA		C
VRS-TS2AD106J	7-312	AA		C
VRS-TS2AD112J	8-112	AA		C
VRS-TS2AD121J	7-178	AA		C
"	7-316	AA		C
VRS-TS2AD122J	8-105	AA		C
VRS-TS2AD131J	8-96	AA		C
VRS-TS2AD132J	8-116	AA		C
VRS-TS2AD133J	8-89	AA		C
"	8-97	AA		C
VRS-TS2AD150J	7-239	AA		C
VRS-TS2AD151J	7-195	AA		C
"	7-196	AA		C
"	7-197	AA		C
"	7-198	AA		C
"	7-199	AA		C
"	7-200	AA		C
"	7-208	AA		C
"	7-209	AA		C
"	7-237	AA		C
"	7-253	AA		C
"	8-101	AA		C
VRS-TS2AD152J	7-252	AA		C
"	7-319	AA		C
"	8-104	AA		C
VRS-TS2AD154J	7-267	AA		C
"	7-271	AA		C
"	7-327	AA		C
VRS-TS2AD163J	7-300	AA		C
VRS-TS2AD203J	7-247	AA		C
"	7-298	AA		C
"	7-307	AA		C
"	7-309	AA		C
"	8-102	AA		C
"	8-114	AA		C
VRS-TS2AD221J	7-329	AA		C
VRS-TS2AD222J	8-118	AA		C
VRS-TS2AD223J	7-205	AA		C
"	7-249	AA		C
"	8-92	AA		C
"	8-109	AA		C
"	8-110	AA		C
"	8-111	AA		C
VRS-TS2AD224J	7-328	AA		C
VRS-TS2AD243J	8-122	AA		C
VRS-TS2AD271J	7-192	AA		C
"	7-204	AA		C
"	7-212	AA		C
"	7-213	AA		C
"	7-214	AA		C
"	7-215	AA		C
"	7-216	AA		C
"	7-219	AA		C
"	7-223	AA		C
"	7-224	AA		C
"	7-225	AA		C
"	7-226	AA		C
"	7-241	AA		C
"	7-257	AA		C
"	7-265	AA		C
"	7-266	AA		C
VRS-TS2AD301J	8-85	AA		C
VRS-TS2AD302J	7-270	AA		C
VRS-TS2AD303J	7-202	AA		C
"	7-221	AA		C
"	7-262	AA		C
"	7-263	AA		C
"	7-264	AA		C
"	7-282	AA		C
"	7-284	AA		C
"	7-308	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-TS2AD303J	8-120	AA		C
VRS-TS2AD304J	7-274	AA		C
VRS-TS2AD332J	7-259	AA		C
"	7-304	AA		C
"	7-323	AA		C
"	8-123	AA		C
"	8-125	AA		C
VRS-TS2AD333J	7-234	AA		C
"	7-273	AA		C
"	7-311	AA		C
"	7-318	AA		C
"	7-321	AA		C
"	8-117	AA		C
VRS-TS2AD392J	7-297	AA		C
VRS-TS2AD393J	7-228	AA		C
"	7-229	AA		C
VRS-TS2AD433J	8-84	AA		C
VRS-TS2AD471J	7-211	AA		C
"	7-238	AA		C
"	7-240	AA		C
"	7-254	AA		C
"	7-255	AA		C
"	7-256	AA		C
"	7-281	AA		C
"	7-285	AA		C
"	7-287	AA		C
"	7-288	AA		C
"	7-313	AA		C
"	7-314	AA		C
"	8-98	AA		C
"	8-99	AA		C
"	8-100	AA		C
VRS-TS2AD472J	7-245	AA		C
VRS-TS2AD473J	7-301	AA		C
"	7-322	AA		C
VRS-TS2AD474J	7-248	AA		C
"	7-277	AA		C
VRS-TS2AD512J	7-201	AA		C
"	7-310	AA		C
VRS-TS2AD513J	8-93	AA		C
"	8-94	AA		C
VRS-TS2AD514J	7-278	AG		C
VRS-TS2AD562J	7-294	AA		C
"	7-303	AA		C
VRS-TS2AD563J	8-126	AA		C
VRS-TS2AD621J	8-108	AA		C
VRS-TS2AD680J	7-236	AA		C
VRS-TS2AD683J	7-305	AA		C
VRS-TS2AD753J	7-272	AA		C
"	8-119	AA		C
VRS-TS2AD754J	7-275	AA		C
VRS-TS2AD822J	8-103	AA		C
VRS-TS2AD913J	7-324	AA		C
"	8-124	AA		C
VRSTS2AD1373F	7-296	AA		C
VRSTS2AD6812F	7-295	AA		C
VSBS108///-1	8-74	AE		B
VSDTC114EK-1	8-75	AB		B
"	8-77	AB		B
"	8-78	AB		B
"	8-79	AB		B
"	8-80	AB		B
"	8-81	AB		B
VSDTD114EK/-1	7-190	AC		B
VS2SA1037KS-1	7-188	AB		B
"	7-191	AB		B
VS2SC2412KR-1	7-189	AD		B
"	8-76	AD		B
[X]				
XBBSD30P06000	1-B3	AA		C
XBPSD30P06K00	1-B8	AA		C
XBPSN40P06K00	1-B4	AA		C
XEBSD20P06000	3-B1	AA		C
XEBSD30P08000	1-B7	AA		C
XEBSD30P10000	1-B2	AA		C
"	2-B2	AA		C
"	5-B2	AA		C
XHBSD30P05000	1-B5	AA		C
[0]				
OCBLRZ6562ZN/	9-31	AQ		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
0CBLRZ6581ZN/	9-30	AQ		C
0CBPJCEJ1601/	9-24	AH		A
"	9-25	AH		A
0CBPKZ0194ZZ/	9-16	AC		C
0CBPZZ0906ZZ/	9-26	AH		A
0CBPZZ0931ZZ/	9-15	AH		C
0CBUAC0034EZ/	9-36	AE		B
"	9-37	AE		B
0CBUAC0264AZ/	9-35	AD		B
0CBUAC0284BK/	9-38	AF		B
"	9-39	AF		B
0CBUAG0161AC/	9-34	AQ		B
0CBUBA0011AL/	9-21	AD		B
0CBUBC0125DK/	9-17	AD		B
"	9-18	AD		B
"	9-19	AD		B
"	9-20	AD		B
0CBUBC0302BZ/	9-23	AE		B
0CBUBC0336AZ/	9-22	AL		B
0CBUBDBE2R0C/	9-65	AD		B
0CBUBDBE200D/	9-66	AD		B
0CBUBDBE270D/	9-64	AD		B
0CBUBDBE6R2C/	9-68	AC		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
0CBUBDBM300D/	9-67	AC		B
0CBUCB0167AZ/	9-27	AR		B
0CBUDC0163CZ/	9-32	AG		B
"	9-33	AG		B
0CBUDC0232AK/	9-61	AF		B
0CBUEEB101CT/	9-43	AC		C
0CBUEEB152CT/	9-44	AC		C
0CBUEEB223CT/	9-45	AC		C
0CBUEEB242CT/	9-54	AC		C
0CBUEEB330CT/	9-46	AC		C
0CBUEEB334CT/	9-51	AC		C
0CBUEEB390CT/	9-50	AC		C
0CBUEEB392CT/	9-55	AC		C
0CBUEEB471CT/	9-48	AC		C
0CBUEEB472CT/	9-52	AC		C
"	9-56	AC		C
"	9-57	AC		C
0CBUEEB473CT/	9-47	AC		C
0CBUEEB682CT/	9-53	AC		C
0CBUEEB824CF/	9-41	AC		C
"	9-42	AC		C
0CBUEEC272CF/	9-58	AC		C
"	9-59	AC		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
0CBUEEC335CF/	9-40	AC		C
0CBUEFDR33DB/	9-49	AE		C
0CBUEZ0507ZZ/	9-62	AD		B
0CBUFBA471DB/	9-63	AD		B
0CBUGAB101RV/	9-13	AF		C
0CBUGAE331TS/	9-7	AH		C
0CBUGCF104CQ/	9-10	AD		C
0CBUGCM332BJ/	9-6	AF		C
0CBUGCS101AA/	9-11	AD		C
0CBUGFF102BQ/	9-14	AD		C
0CBUGFF223JS/	9-5	AC		C
0CBUGFF472BQ/	9-4	AC		C
0CBUGFF474JA/	9-8	AF		C
0CBUGFM104KD/	9-12	AF		C
0CBUGFM224KR/	9-1	AF		C
0CBUGZ1186ZZ/	9-2	AL		C
0CBUGZ1187ZZ/	9-3	AD		C
0CBUGZ1188ZZ/	9-9	AK		C
0CBUKZ0826ZZ/	9-28	AK		C
0CBUZZ0156ZZ/	9-29	AN		C
0CB829585032/	9-60	BE		B

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